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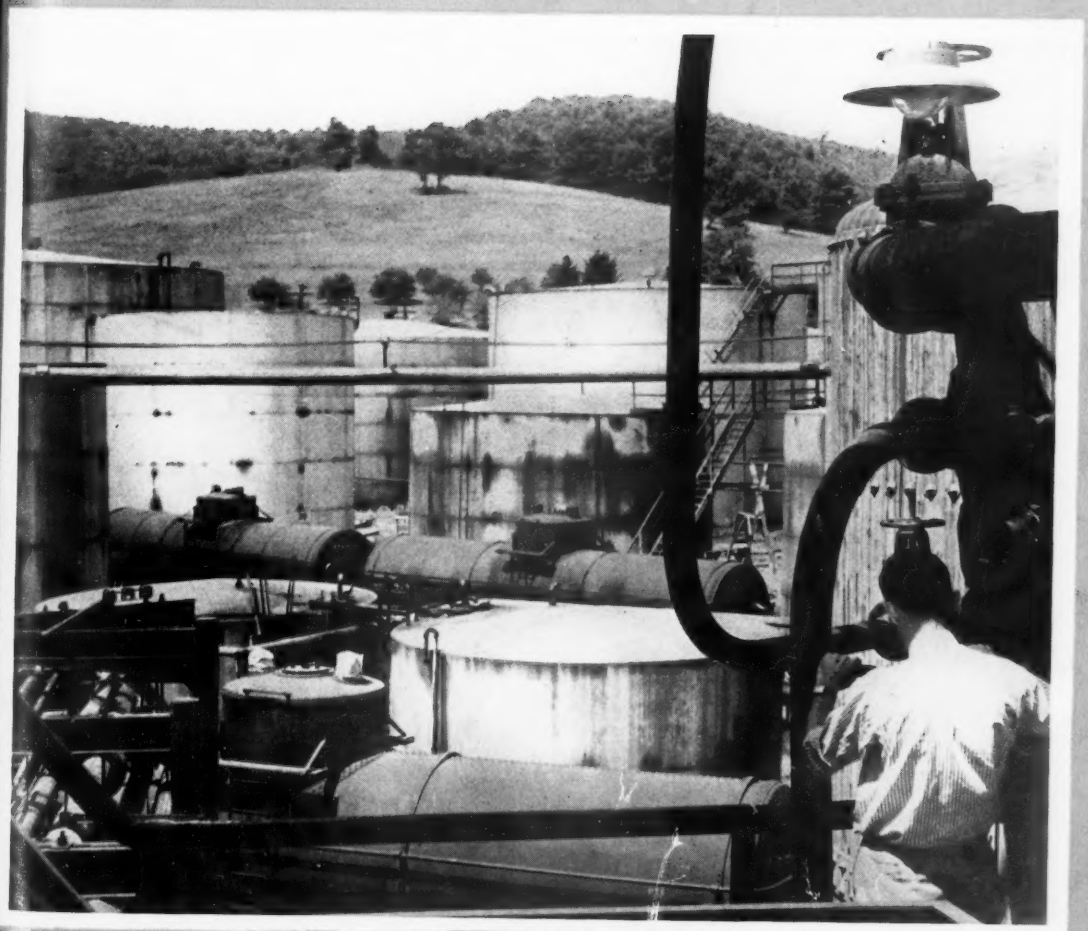
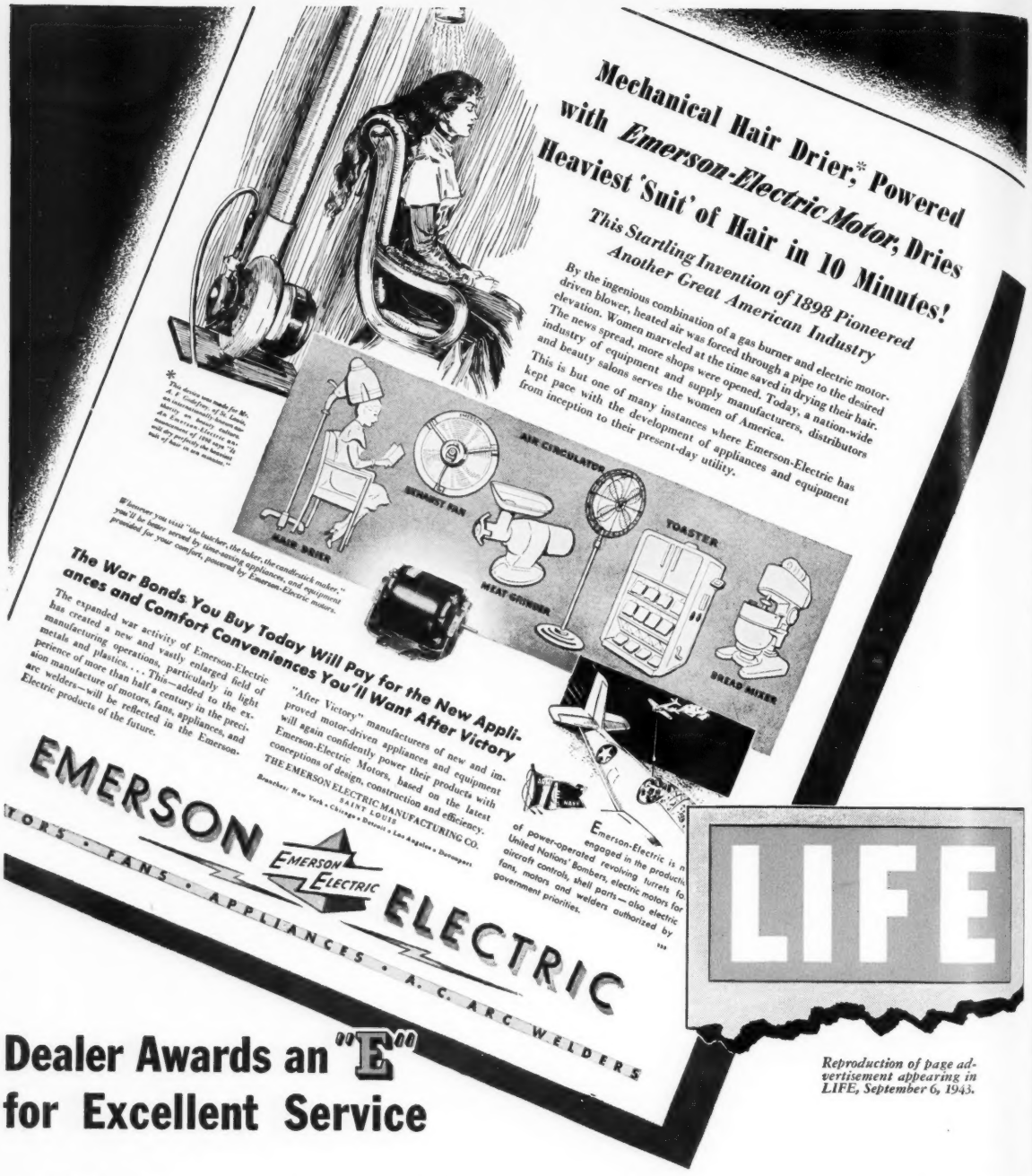
NOVEMBER, 1943

fueloil & oil heat




Mechanical Hair Drier,* Powered with Emerson-Electric Motor, Dries Heaviest 'Suit' of Hair in 10 Minutes!
This Startling Invention of 1898 Pioneered Another Great American Industry
By the ingenious combination of a gas burner and electric motor-driven blower, heated air was forced through a pipe to the desired elevation. Women marveled at the time saved in drying their hair. The news spread, more shops were opened. Today, a nation-wide industry of equipment and supply manufacturers, distributors and beauty salons serves the women of America.
This is but one of many instances where Emerson-Electric has kept pace with the development of appliances and equipment from inception to their present-day utility.
AIR CIRCULATOR
EXHAUST FAN
HAIR DRIER
MEAT GRINDER
TOASTER
BREAD MIXER
The War Bonds You Buy Today Will Pay for the New Appliances and Comfort Conveniences You'll Want After Victory
The expanded war activity of Emerson-Electric has created a new and vastly enlarged field of manufacturing operations, particularly in light metals and plastics. . . . This—added to the experience of more than half a century in the precision manufacture of motors, fans, appliances, and arc welders—will be reflected in the Emerson-Electric products of the future.
"After Victory" manufacturers of new and improved motor-driven appliances and equipment will again confidently power their products with Emerson-Electric Motors, based on the latest conceptions of design, construction and efficiency.
THE EMERSON ELECTRIC MANUFACTURING CO.
SAINT LOUIS
Branches: New York • Chicago • Detroit • Los Angeles • Davenport
Emerson-Electric is now engaged in the production of power-operated revolving turrets for United Nations' Bombers, electric motors for aircraft controls, shell parts—also electric fans, motors and welders authorized by government priorities.
EMERSON ELECTRIC
MOTORS • FANS • APPLIANCES • A.C. ARC WELDERS
LIFE

Reproduction of page advertisement appearing in LIFE, September 6, 1943.

Dealer Awards an "E" for Excellent Service

Parts used in the maintenance of electrical appliances and equipment are often difficult to obtain in peacetime, but under wartime conditions the difficulties are multiplied. With an appreciation of this situation Emerson-Electric is giving special attention to requests for service and parts. It is gratifying, therefore, to have Mr. H. G. Erkart of St. Matthews, Kentucky write:

"I wish to take this opportunity to thank you for the way you handled a recent emergency order I sent you. The service was excellent and very much appreciated by me . . . after what I have gone through, it was certainly refreshing."

THE EMERSON ELECTRIC MANUFACTURING CO.
SAINT LOUIS

Branches: New York • Chicago • Detroit • Los Angeles • Davenport

EMERSON ELECTRIC ELECTRIC

MOTORS • FANS • APPLIANCES

Sundstrand FUEL UNITS

CUTAWAY VIEW
SUNDSTRAND
S-1 FUEL UNIT

. . . NOW *and for the future!*

Replace worn-out and troublesome pumps *now* with Sundstrand Fuel Units! Get our Bulletins 106 and 107 showing mounting adaptors and foot mountings needed for all types of burners. We can furnish: ● The Sundstrand S-1 Fuel Unit . . . a popular favorite of proved reliability, durability, and performance. ● The Sundstrand S-2 Fuel Unit . . . a two-stage pump for conditions requiring high lift or involving long runs. ● The Sundstrand 1-OB Fuel Unit . . . consisting of the pump only, without strainer or valve, for use where the strainer and valve are separate parts of the system. ★★★ For the future . . . let's get together *now* on your anticipated fuel pumping needs. War has accelerated the development of Sundstrand Fuel Units to the extent we feel confident we can supply pumps for oil burning equipment to meet any requirements. Let's have YOUR *future* problems now, while we're in the swing of doing things in new and better ways. Then . . . when the time comes . . . you, and we, will be *ready!*

ARMY E NAVY

Keep Buying War Bonds

SUNDSTRAND PUMP DIVISION

SUNDSTRAND MACHINE TOOL CO. ROCKFORD ILLINOIS U.S.A.

2556 ELEVENTH ST.
ROCKFORD, ILLINOIS

Use oil & oil heat

Stroboscope, anemometer, and electrical control apparatus utilized in conducting NEMA code test of Airistocrat Propeller Fan Blade.

The Study of *AIR IMPELLING* at TORRINGTON'S *Research Laboratory*

MANUFACTURERS engaged in the production or planning of units requiring air impellers, whether for present or postwar use, may avoid costly changes and production delays by consulting our engineers during *the early stages of design.*

We stress our words "the early stages of design" because it is then, our experience has proved, that we can be of greatest service to our customers.

"Costly changes and production delays" have occasionally been the bitter fruit of consultations arranged with us too late—after a unit was completed, even marketed.

There is no obligation in utilizing the help we offer. State your problem and we will recommend the correct Torrington air impeller, which must stand upon its own merits if it is to be selected for inclusion in your equipment.

THE TORRINGTON MANUFACTURING COMPANY, TORRINGTON, CONN.

MANUFACTURERS OF AIRISTOCRAT QUIET PROPELLER FAN BLADES & AIROTOR BLOWER WHEELS

VOL. 2 NO. 7

fueloil & oil heat

NOVEMBER 1943

Names in the news

Henry Norris has been made chief of the Heating Branch of the Plumbing and Heating Division of WPB, Washington. He formerly was chief of the Fuel Burning Section.

Hilliard M. Brown, industrial specialist, is in charge of oil and gas burning equipment in the Plumbing and Heating Division of WPB, replacing *Charles Howard* who has resigned because of ill health.

Paul J. Thompson is the new manager of the Philadelphia branch of National Radiator Co., Johnstown, Pa. Mr. Thompson succeeds *Harry N. Booth* who recently succumbed to a heart attack. Paul Thompson has been with The National Radiator organization since 1936. He started as a salesman at Wilmington, Delaware, then was transferred to the Eastern Shore of Maryland territory, and more recently has been in the Baltimore branch office.

Thomas G. Colter, former manufacturers' agent, has resigned from WPB at Washington, to become New England air valve representative of the Dole Valve Co., Chicago. He will make his headquarters in Boston.

D. C. Marschner, assistant manager of the sales promotion advertising department of Shell Oil Co., Inc., has been named acting manager of the department according to an announcement by *P. E. Lakin*, vice president—marketing.

Harvey D. Carter, formerly with the South Shore Oil & Development Co., of New York, has been appointed Director of the Supply Div., for PAW.

James D. Michelson was graduated with honors from Williams College on October 23, and will enter the Army on November 23. He is the son of *Arnold Michelson*, New York resident vice-president of Minneapolis-Honeywell.

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A. E. COBURN, *Editor* — ROBERT GRAY, *Business Manager* — A. G. WINKLER, *Advertising Manager*

Pacific Coast Representative: Don Harway & Co., 816 West 5th St., Los Angeles, Cal. Phone: Mutual 8512

SUBSCRIPTIONS

Yearly: $3
Canadian: $4.35
single copy: this issue 25¢

Read why Dust-Stops mean important business for you NOW!

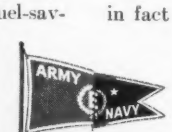
Right now you can enjoy the biggest filter sales of the year with Dust-Stop Air Filters. Here's why:

This is the peak season for the filter business. It's the time of year when most every home owner will actually do something about his heating problem.

It's the time when every forced-warm-air furnace owner in your community should change his filters to help save fuel.

Right now, Dust-Stop national advertising is telling these people about the importance of changing filters regularly. It is also telling them about the fuel-saving advantages of Dust-Stop Air Filters.

This advertising has been appearing and will continue to appear in the *Saturday Evening Post, Life, Better Homes and Gardens, House Beautiful, and American Home.*



We help you tie in with this advertising

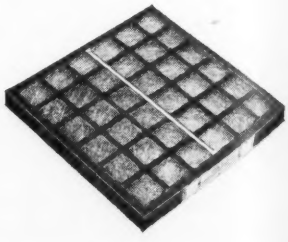
Dust-Stops furnish you with the biggest and best set of free Dealer Helps in the filter business.

You get free, attractive mailing pieces, return post cards, window and counter displays. You get free newspaper ad mats, radio announcements, furnace labels, telephone directory listings . . . in fact everything to tell prospects to come to you for their Dust-Stop filters.

Also, the new catalog of filter sizes enables you to take orders by phone and—if you wish—to fill those orders by mail.

So, get in touch with your Dust-Stop distributor today. Tell him you want to get in on the proved sales plan, "Pulling Profits out of the Air."

Owens-Corning Fiberglas Corporation, Toledo1, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.



FIBERGLAS* DUSTOP* AIR FILTERS

*T. M. Reg. U. S. Pat. Off.

PRE-HEATING POST-WAR PROSPECTS

Developing oil burning units to stand-up under battle conditions is another invaluable chapter in York Heat oil burner experience that began over 25 years ago.

After our Army and Navy have settled things with the "new order", York will again go back to industrial and domestic heating. Right now, York is planning the finest oil-burning units in the history of the industry.

To pave the way for the profitable years ahead for York Heat dealers the name York Heat is being kept in front of millions of people every month.

YORK HEAT advertisements appear regularly in:

AMERICAN HOME — HOUSE *and* GARDEN
HOUSE BEAUTIFUL — TIME (*Canada*)
BETTER HOMES *and* GARDENS

Warming-up a Fighter

"Putting on the heat" is nothing new for us. Twenty-five years ago, York Oil Burners were heating buildings, plants, and homes. Little did we suspect then, the day would come when York Heat would be warming-up Uncle Sam's airplane motors in sub-zero temperatures across the top of the world.

For the present, all our plant-facilities are devoted to the war-effort. Much of this work is producing York Burners, for operation under all sorts of complex war-time conditions.

This vast source of experience, crowded into a few years' time, can't help but influence the oil burners of tomorrow. And when the war is won and we can again concentrate on the production of industrial and domestic units, you will find York heating equipment offering unequaled advantages in performance and economy.

* * *

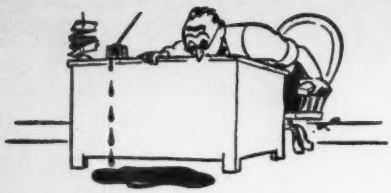
The more Bonds you buy now, the more you will be able to enjoy the new things to come.

YORK HEAT
DIVISION OF YORK-SHIPLEY, INC., YORK, PA.

YORK HEAT

Division of YORK-SHIPLEY, INC., YORK, PA.

fueloil & oil heat



Editorial leaks

Discussion at the Chicago meeting of Oil-Heat Institute revived the subject of industry rationing of fueloil, and gave it a brief airing—too brief an airing to put all angles of the topic on the record. It would seem to be an easy way out of a troublesome situation simply to give dealers the available oil and let them pass it out to their customers in direct ratio to the total available supply. Recent history does not support that practice.

The first experience with industry rationing was at the start of the Eastern gasoline shortage. Though the short supply was allocated to dealers in proportion to their past sales, it never was distributed to customers on the basis of their past purchases. Old customers blamed dealers for their empty tanks. Some others drove in after dark to pick up five gallons in a can. The resulting confusion can hardly be called rationing.

Coal men presently are feeling the bite of industry rationing. Having seen the trouble fueloil rationing caused this industry, they at first opposed coupon rationing of coal. Their opposition was strong enough to cancel original plans to print coupons and set up the system for the day it might be desirable to put it in operation. Now they would like to be relieved of industry rationing, but it is not possible now to set up the system without the same confusion that attended the start of fueloil rationing in the first of last heating season. Rationing officials have no more stomach for that than the industry. It is understood the coal men will have to continue this season with the present system of industry rationing.

No businessman enjoys refusing an order, or delivering only a part of an order. If a dealer has only 30,000 gallons of oil instead of the 50,000 he needs, it is hard to explain to a customer why he can have only 300 gallons of the 500 he ordered. The dealer gets the blame, and unless he is stronger than most humans, he will be out of oil before all his customers have had their share.

If there is to be no shortage of product, let's eliminate rationing and sell our customers what they want. If there is to be a shortage, it is better for the industry that some other authority take the responsibility for allocating the available supply.

◈

Belated enthusiasm for fuel conservation, which has sparked Messrs. Nelson, Ickes and Eastman into an official drive to cut fuel waste, comes at a time when not only manpower, but many materials needed for true conservation are not available. Mr. Ickes was offered a plan for oil conservation in 1941, and liked it, but he never actively backed the drive when it had an opportunity to save the most oil. Now, in concert with the other agencies, the Administrator of Petroleum and Solid Fuels is hot for conservation. He is ready now to "War on Waste," but the men who once could have helped him make the drive a success, and the materials they would need, no longer are available in effective quantities.

Though the liberalizing of control purchasing was temporarily an empty gesture, it is hoped that the government agencies will not cool on the idea until materials are made available to do a worthwhile job. It is hoped and expected that some material allotments will be made for the first quarter which will make more controls and instruments available. Such allotments probably will be completed within the next 30 days.

Supply houses, distributors and jobbers should file PD1X applications immediately for priorities to buy the control and instrument stock they need. Though all this stock is not now available, it will be helpful for manufacturers to have these evidences of greater need for critical materials.

◈

No relief has yet been granted to those primary suppliers of fueloil who have been living strictly within the provisions of PAW's Directive 59, though it is understood that there is plenty of active opposition to the continuation of the directive, either as presently written or as proposed to revise it. Allocation of oil on a strictly historic basis apparently has outlived its usefulness, and an increasing number of suppliers are finding that the inequities in the situation far outweigh the benefits, if any. OPA would like to allocate oil according to the demand indicated by coupon flow-back, but there is opposition to this plan—some within PAW, and less within the trade.

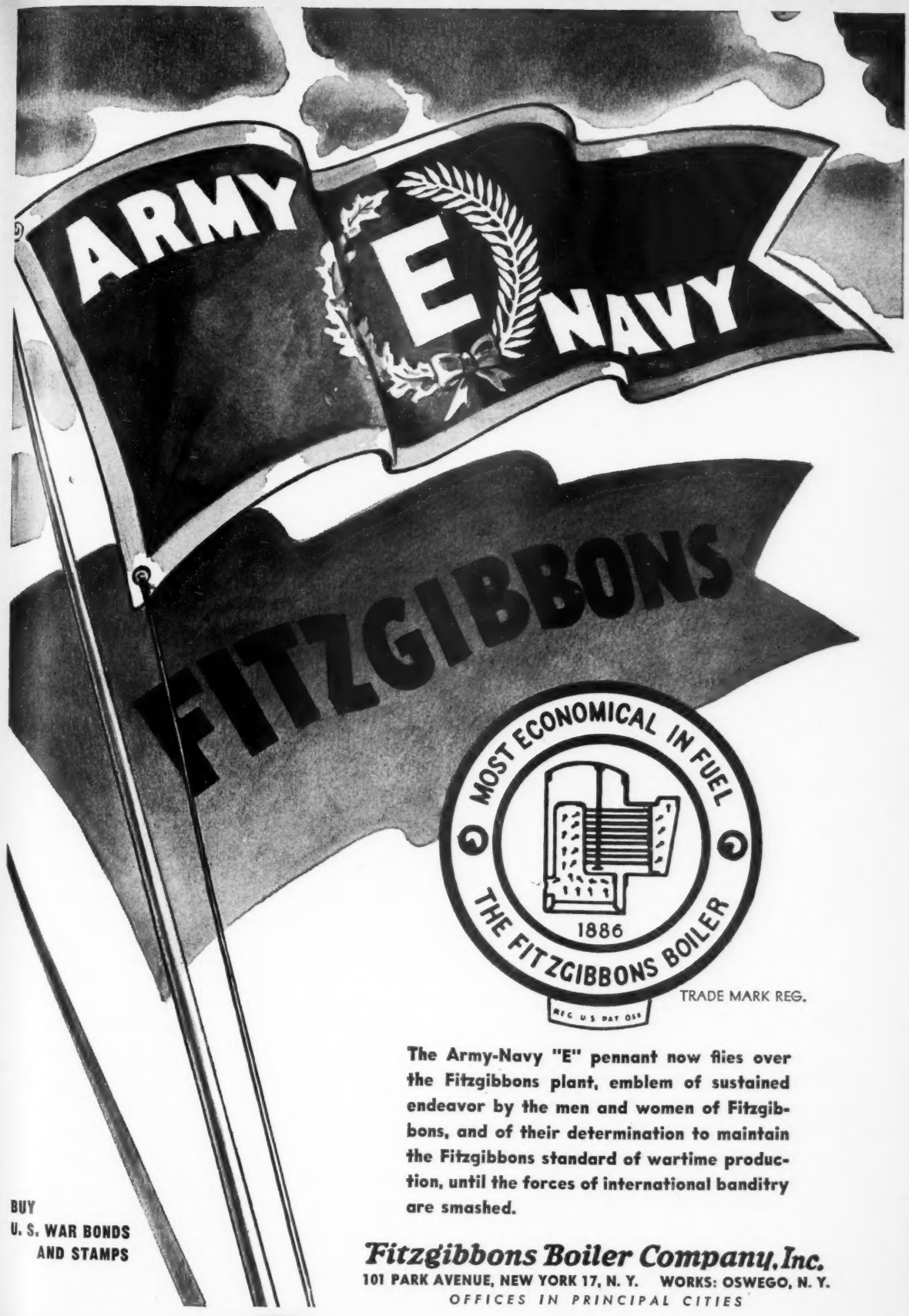
It is understood that not all oil companies are being controled strictly by Petroleum Directive 59, while others are trying hard to stay entirely within the law. The result is a penalty on those who are trying to abide by the Directive, while those who wink at its restrictions are gaining an advantage. Those who are not particularly hurt, and others who suspect anything that comes from OPA, are against change in present regulations.

Under PAO-1 a supplier must furnish oil to his 1942 customers first, and then to any additional customers that may be assigned by PAW or its marketing committees. Under PD-59 oil is distributed to suppliers at all levels on a percentage basis of 1941 sales.

The battle still rages in Washington and out. Administrator Ickes is committed to the theory of freezing accounts as of 1941. Practice appears to have demonstrated that this is not feasible, though there are elements in the industry that are anxious to hold to the idea as long as possible.

Coupon flow-back is not entirely without faults. It is possible that it would drop the bars to violent competition in the fueloil business which Government would like to avoid for the duration of the War. Such competition might leave the public wide open to appeals by the majors that in time of shortage it is safer to deal with the larger, more substantial suppliers, and some champions of the independent marketer are firmly against the flow-back plan on those grounds.

OPA has information which will indicate the actual demand in the various territories much more accurately than the two-year-old 1941 historic basis can hope to. It seems reasonable that some form of allocation based on present demand is desirable, not only for the protection of law-abiding companies, but also for the protection of a public that has no interest other than to get oil to the full extent of issued coupons. Present regulations appear to be protecting neither the trade nor the public.



TRADE MARK REG.

The Army-Navy "E" pennant now flies over the Fitzgibbons plant, emblem of sustained endeavor by the men and women of Fitzgibbons, and of their determination to maintain the Fitzgibbons standard of wartime production, until the forces of international banditry are smashed.

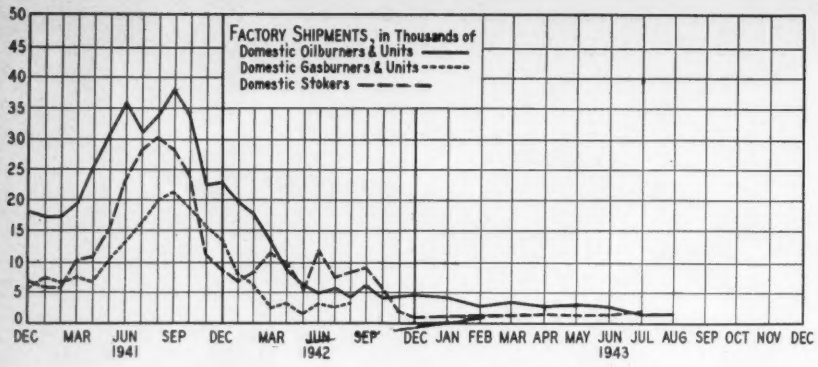
BUY
U. S. WAR BONDS
AND STAMPS

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK 17, N. Y. WORKS: OSWEGO, N. Y.

OFFICES IN PRINCIPAL CITIES

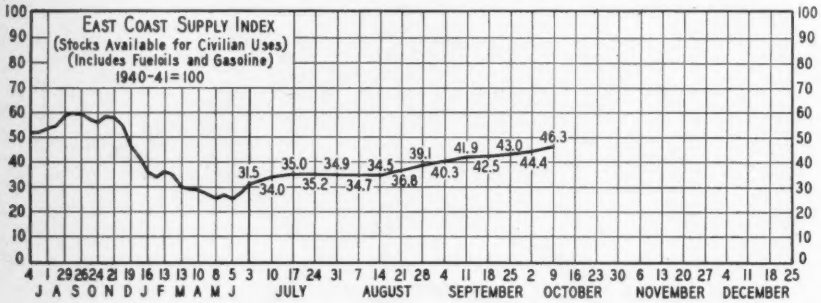
fuel oil & oil heat


FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Gasburners & Units
Domestic Stokers
DEC MAR JUN SEP DEC MAR JUN SEP DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1941
1942
1943

Shipments of Oilburners and Units

Adjusted to include manufacturers other than the 137 reporting to Census Bureau, FUELOIL & OIL HEAT'S estimates of shipments are:

	AUGUST			EIGHT MONTHS		
	1943	1942	Percent Change	1943	1942	Percent Change
Conversion	1,011	2,635	—61.6	11,959	57,578	—79.2
Boiler units	215	597	—64.0	5,704	7,758	—26.5
Furnace units	295	1,663	—82.3	4,603	14,897	—69.1
All domestic	1,521	4,895	—68.9	22,266	80,233	—72.2
Commercial	3,493	4,865	—28.2	31,744	38,348	—17.2
Total	5,014	9,760	—48.6	54,010	118,941	—54.6



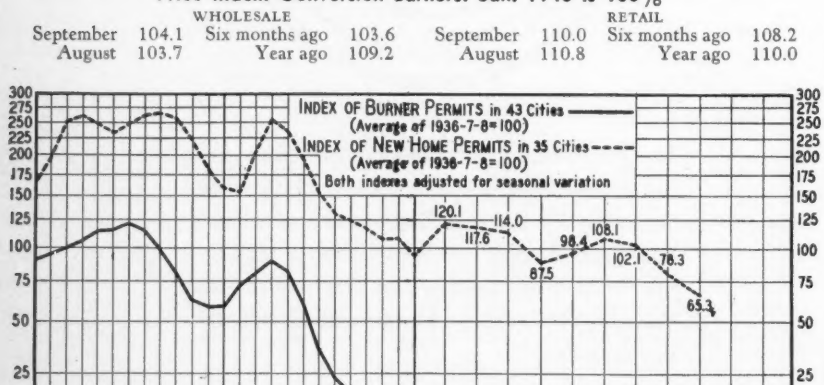
September Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS		BOILER-BURNERS		FURNACE-BURNERS	
	Top price*	Low price	Top price*	Low price	Top price*	Low price
Highest	$338	$185	$595	$390	$715	$395
Lowest	215	169	425	300	425	335
Sept. Aver.	266	175	488	366	513	359
Aug. Aver.	271	180	478	357	465	360

*Top price key dealers for conversion burners are those whose minimum retail prices are $200 or more; for boiler-burner and furnace-burner units (exclusive of ductwork) those whose minimums are $400 or over.

Price Index: Conversion Burners: Jan. 1940 is 100%

WHOLESALE				RETAIL			
September	104.1	Six months ago	103.6	September	110.0	Six months ago	108.2
August	103.7	Year ago	109.2	August	110.8	Year ago	110.0



Oilheating Trends

SEPTEMBER installations of domestic burners and units are estimated at 510, down 86.8% from 3,863 in the same month last year. Permits from 40 reporting cities were off 82%, while reporting key dealers had a decline of 91.6%. With September normally the biggest sales month of the year, the war's impact on burner installations is demonstrated by the fact that this September was just a little more than one percent of the industry's best September, in 1941 when 48,959 domestic burners and units were sold.

PRICES: Burner prices are relatively static on the index, showing less than a half point change from the previous month in either wholesale or retail brackets. Interestingly, the wholesale index is the same as it was in March 1942, supposed to be the base period for price ceilings, although in the intervening period there have been swings in the index as wide as five points.

SERVICE INCOME: September income from service departments of reporting dealers averaged $3,759, up 29.9% from $2,894 for the same group a year ago. August service income average was $2,125; July was $2,066. Several companies report more service calls than they can handle with shrunken crews.

STOCKS: Factory stocks of domestic oilburners and units at the end of August, the latest month for which figures are complete, were 35,661, compared with 33,493 at the beginning of the month. Shipments during the month were 1,521, indicating that new production was 3,689. Dealer stocks were not checked this month, but in view of very few sales remain about the same as a month ago, or 13,500.

CONVERSIONS: Now that conversion requirements have been removed by both OPA and PAW, it is important to measure how much of a beating the industry took on this score. The residential consumers who converted represented 9.7% of the pre-rationing distillate gallonage of all reporting fueloil distributors and 27.9% of their residual volume. The number of homes that converted was only about 6% in number, but they averaged large in size.

It would not be reasonable to assume that total residual sale was cut as much

as the 27.9% reported, since these distributors sell mostly heating oils rather than the large heavy oil accounts.

The next step may be permitting some reconversions from coal back to oil, but so far the Government agencies do not permit this except in rare extreme hardship cases. The distributors and dealers reporting, however, have heard of quite a number of reconversions in their communities, most of which would be extra-legal. Of all those heard from, 64% know of some residential reconversions, and 27% mention commercial and industrial users, to their knowledge, going back to oil. The overall number of cases would not be important, because the average distributor knows of only one or two, but if the coal shortage scare continues there will be more, authorized or not.

CUSTOMER TURNOVER: Some distributors were so short of oil in some periods of last season that they lost customers to others, better supplied. Of those outlets who report that they have more domestic consumers this season than last, the average gain in number of accounts is 4.6%. Those who have less such customers today than a year ago lost an average of 5.3%. Thus it appears that about 5% of all users shifted suppliers. What happened to orphan customers when their original dealers quit business is hard to trace, or rather it's hard to learn the source of the oil that served them. Only 36% of reporting distributors say they were given increased allocations of oil during the season to pick up orphans.

FUELOIL STOCKS: While East Coast fueloil stocks are not to be published, for military reasons, it is possible to make broad comparisons, and this year is less favorable than last on distillates, or home-heating oils. When the heating season officially started on Oct. 1 there was about 17.6% less of such oil in the East than last year, including terminal stocks, dealer stocks and oil in customers' tanks. This is not too serious a situation since transportation facilities are so much improved and it will be easier to ship in the product as needed. Nonetheless, the picture bears close watching. After all of the publicity pointing to overall supply improvement, it would be ironical to have to cut coupon values this season, but it actually may become necessary. Strangely, stocks in customers' tanks are lower than at this time a year ago, in spite of the fill-up campaign.

Oilburner and Building Permits

	OILBURNERS				DWELLINGS			
	September		9 MONTHS		September		9 MONTHS	
	1943	1942	1943	1942	1943	1942	1943	1942
Albany, New York	0	0	0	10	..	..	..	..
Baltimore, Maryland	..	..	..	..	56	158	560	1291
Binghamton, New York	..	..	..	..	0	0	0	15
Boston, Massachusetts	..	..	..	..	0	19	22	131
Bridgeport, Conn.	0	41	3	581	..	..	..	..
Des Moines, Iowa	..	..	..	..	0	10	10	523
Detroit, Michigan	0	34	0	662	403	461	3487	6100
Elizabeth, N. J.	0	0	3	51	0	7	54	12
Freeport, New York	2	2	4	55	..	..	..	..
Greenwich, Conn.	..	..	..	..	0	0	3	23
Hackensack, N. J.	..	..	..	..	0	0	0	40
Hudson County, N. J.	1	3	26	393	..	..	..	..
Irvington, N. J.	0	1	1	50	0	0	11	38
Lynn, Massachusetts	..	..	..	..	0	1	0	27
Meriden, Conn.	0	5	..	66	..	..	..	..
Milwaukee, Wisc.	0	10	6	197	40	50	205	566
Minneapolis, Minn.	13	22	62	330	0	15	2	369
Morristown, N. J.	..	..	..	..	0	0	0	6
Mt. Vernon, New York	2	5	17	78	..	..	..	..
Newark, New Jersey	2	2	..	173	..	..	..	..
New Bedford, Mass.	3	3	27	124	..	..	..	..
New Haven, Conn.	1	1	2	69	..	..	..	..
New Rochelle, N. Y.	0	1	0	42	0	0	0	19
Manhattan, Bronx, Rchd.	4	8	44	730	..	..	..	..
Norfolk, Virginia	1	172	149	964	2	97	182	979
Oakland, Calif.	0	2	4	16	..	..	..	..
Omaha, Nebraska	6	3	24	266	13	1	4	297
Orange, New Jersey	0	0	1	20	0	11	0	14
Paterson, N. J.	4	0	1	44	2	2	30	26
Plainfield, N. J.	..	..	..	..	9	6	18	43
Portland, Maine	1	0	4	65	27	27	49	84
Portland, Oregon	13	26	46	975	43	333	1389	1705
Providence, R. I.	0	3	3	201	0	1	0	42
Reading, Penna.	..	..	..	..	0	0	0	8
Richmond, Virginia	0	3	1	82	0	70	33	344
Rochester, N. Y.	2	2	5	179	..	..	..	..
Rockville Center, N. Y.	0	1	5	60	0	0	0	14
Salem, Massachusetts	0	1	0	19	0	1	0	8
St. Louis, Missouri	5	8	43	313	0	14	39	356
St. Paul, Minnesota	0	6	7	386	1	4	4	196
Schenectady, N. Y.	0	4	15	221	..	..	..	..
Springfield, Mass.	..	..	..	..	17	37	263	447
Stamford, Conn.	1	2	1	50	..	..	..	..
Trenton, New Jersey	..	..	..	..	0	0	103	2
Utica, New York	..	..	..	..	0	4	0	79
Washington, D. C.	5	10	20	864	..	..	..	..
West Orange, N. J.	..	..	..	..	0	3	0	23
White Plains, N. Y.	3	6	11	52	0	0	0	3
Wilmington, Delaware	0	2	3	100	0	0	496	13
Worcester, Mass.	3	10	13	208	..	..	..	..
Yonkers, New York	1	8	12	134	..	..	..	..
Totals	73	407	563	8591	613	1332	7064	13843
Percent Change	—82.0	..	—93.4	..	—54.0	..	—49.0	..

Last season there was a PAW prohibition on delivering home-heating oil from August 1 to September 15. People became jittery. Then in September rationing was announced and everyone told to have his tank filled before October 1. Nearly everyone ordered oil, but because of the short time it was possible for distributors to fill only about 80% of the tanks. This season the public is less disturbed about being able to get oil when they want it, and many did not order a fill-up. What with payroll withholding taxes, September 15 income tax, bond drives, etc., many saw no reason to put out the money for oil until they used what they had on hand. Distributors report that as of October 1 only 57% of customers' tanks had been filled, compared with 80% a year ago. The difference in Eastern States is 2,275,000 barrels less in basement tanks. Eastern primary terminal stocks were lower by 2,695,000 barrels. Local distributors bulk plant stocks were up about 12% or 900,000 barrels over a year ago, the only comparison on the plus side.

In the Midwest 55% of customers' tanks had been filled by October 1, but an accurate comparable figure for last season is not available. One interesting geographic difference between East and Midwest is in the practice of customers depositing their coupons with their suppliers. Eastern reports show 70.9% deposited, and Midwest only 33.8%. This measures the greater prevalence of automatic delivery systems used in the East.

INVASION JITTERS

JITTERS—Yes, Invasion Jitters seem to be the Axis ailment. That dreadful fear which has now tightened its strangling grip on all enemy nations — when will they strike—where will they strike—strike with that tremendous power such as the world has never before known.

Those impenetrable defenses built to withstand years of assault are just another job for our tough, fighting men, but they must continue to get those superior weapons and supplies in a never-ending flow.

To help keep this never-ending flow of supplies, the production records established in the Luxaire plant in producing LUXAIRE warm air Furnaces and air conditioning units, are being stepped up to their utmost in producing implements of war that stretch all the way from barracks to the fighting fronts.

We, at Luxaire, won't let down until this job is done. Our job is

VICTORY.

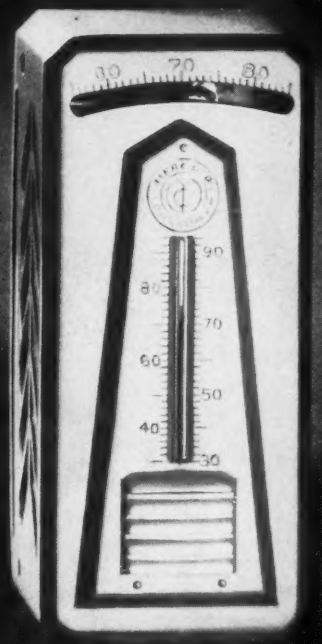
BUY MORE WAR BONDS AND STAMPS

Luxaire

WARM AIR FURNACES . . . AIR CONDITIONING UNITS . . . COAL . . . GAS . . . OIL

THE C. A. OLSEN MANUFACTURING COMPANY ELYRIA, OHIO

MERCOID SENSATHERM



AN EXTREMELY SENSITIVE THERMOSTAT

LET'S BE REALISTIC

There are a lot of enchanting promises floating around about a fantastic world we will be living in after the war. Fine—it can't come too soon, but it looks like the demands of rehabilitation will determine the course of events after the costly struggle is over.

The order of things during the postwar period will of necessity, call for rigid economy throughout the entire program of living. It is natural to assume that some changes will be made, and then only where a saving can be effected.

The day dream world is very likely to be out of grasp for a little while to come. People as a whole are not so much concerned about fancy frills or novel ways of doing things as they are about getting back some of the basic comforts now denied by war priorities, and among the first of these is automatic heat—assured by the Mercoid time proven way of efficiency, accuracy and trouble-free performance.

THE MERCOID CORPORATION • 4213 BELMONT AVE. CHICAGO 41, ILL.

WASTE IS SABOTAGE!

ARE YOU DOING ALL YOU CAN TO AVOID IT IN YOUR BOILER PLANT?

Fuel is a vital weapon of war. It is imperative that boiler plants fired with fuel oil, transfer every last heat unit to useful power or heat.

To make sure that your heat or power plant is delivering all the steam of which it is capable with the least possible fuel consumption . . . check your operation against the ten points listed opposite.

- ✓ **All mechanical parts of burners should be kept clean and in good operating condition. Worn parts should be promptly replaced. Keeping equipment in good condition will save you many times over the cost of replacements.**
- ✓ **Temperature of oil supplied to burners should be watched carefully. Bunker "C" or No. 6 oil should be supplied to burners at a viscosity of 150 SSU for best atomization.**
- ✓ **Atomizers should be properly adjusted for best position with relation to air register throat.**
- ✓ **No more air than is absolutely necessary for complete combustion of the fuel without objectionable smoke should ever be supplied to the burners. If at all possible a recording flue-gas analyzer should be installed. If a recording analyzer is not installed, frequent analysis of combustion gases should be made with a hand analyzer.**
- ✓ **The fire side and water side of boiler surfaces should be kept clean, as soot on the first and scale on the second will reduce boiler efficiency. A definite schedule for cleaning tubes should be established.**
- ✓ **Uptake gas temperature should be checked against boiler manufacturer's guarantees. Too high a temperature in the uptake is usually an indication of a dirty boiler.**
- ✓ **Boiler baffles should be maintained in good condition. Leakage through baffles will allow partial short-circuiting of the gases, which will also cause a high exit gas temperature.**
- ✓ **Boiler settings, tube doors, explosion doors and boiler entrance doors should be kept airtight. Infiltration of air through any of these parts causes a serious loss in efficiency.**
- ✓ **Test checks should be made frequently on the overall efficiency of the boiler plant.**
- ✓ **Auxiliary equipment such as feed water heaters, pumps, etc., should be maintained in the best possible condition.**

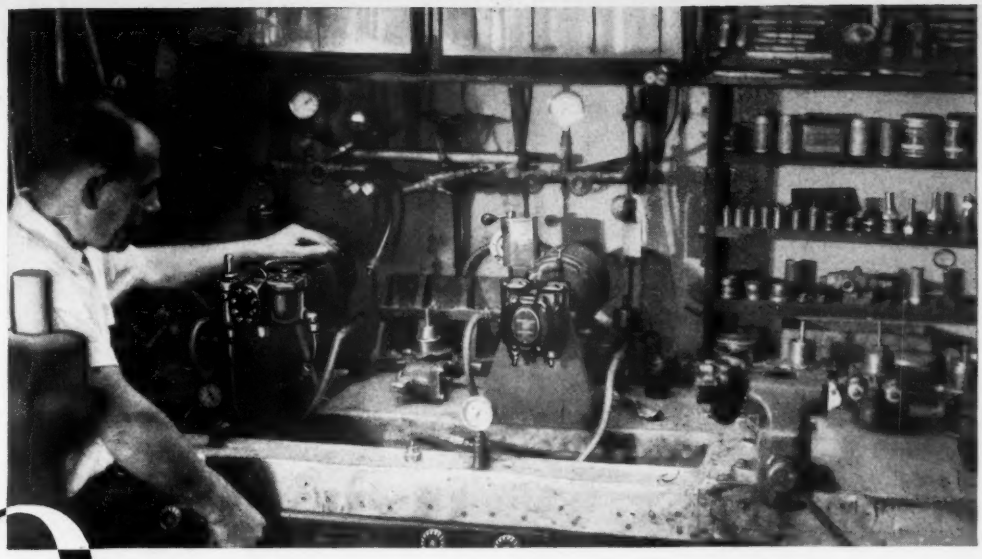
TODD SHIPYARDS CORPORATION

TODD COMBUSTION DIVISION

601 West 26th Street, New York 1, N. Y.

NEW YORK · MOBILE · NEW ORLEANS · GALVESTON · SEATTLE · BUENOS AIRES · LONDON

TODD BURNERS ★ ★ ON THE FIRING LINE OF AMERICA'S WAR PRODUCTION FRONT



Quality... NOT QUANTITY...

is Webster Electric Service Dealers' Repair Standard!

Typical of the zeal with which Webster Electric Company's Authorized Service Stations follow through to keep our fuel units operating at highest efficiency is that shown by The Capson Company of Brooklyn, New York.

Under the watchful eye of Charles A. Posé, Capson proprietor, this live organization carefully trains their employes in their duties as skilled repairmen and guarantees that every fuel pump repaired by them will measure up to Webster Electric's high service standards.

Observe the Webster Electric Fuel Unit pictured on the left. It is in for attention the first time in nine years of faithful service. This old type "D" unit is the original design and "Granddaddy" of them *all*. Mr. Posé advises that these old units submit to serviceability just as easily as their present modern counterpart, the 300 series design.

A complete list of Webster Electric Authorized Service Stations is listed here. All are equipped to make repairs in accordance with factory specifications. By contacting them you save time and transportation costs . . . avoid possible congestion and delay at our war-busy factory.

Today, in the midst of war, much of Webster Electric's service is being carried on by these conveniently located service stations and sales representatives. Once this vital job is completed, Webster Electric will be ready again to serve the great oil burner industry with new products, ideas for which are now being developed.

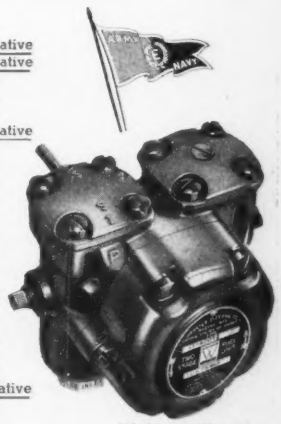
WEBSTER ELECTRIC COMPANY, Racine, Wisconsin, U. S. A., Established 1909. Export Dept.: 13 E. 40th St., New York (16), N. Y. Cable Address: "ARLAB" New York City

BUY MORE WAR BONDS

WEBSTER ELECTRIC SERVICE STATIONS AND SALES REPRESENTATIVES

Ignition Transformers, Fuel Units, and Parts

California, Los Angeles	Garland-Affolter Engr. Corporation	124 W. 4th Street	Sales Representative
California, San Francisco	Garland-Affolter Engr. Corporation	Rialto Building	Sales Representative
Connecticut, West Hartford	Bell Pump Service Company	100 Park Road	Service Station
Illinois, Chicago	Braun Bros. Heating Supply Company	3146 W. Chicago Avenue	Service Station
Illinois, Winnetka	Braun Bros. Heating Supply Company	812 Oak Street	Service Station
Iowa, Des Moines	Delavan Engineering Company	414—12th Street	Sales Representative
Maryland, Baltimore	R. E. Michel Company	1011 Greenmount Avenue	Service Station
Massachusetts, Cambridge	Cronin Supply Company	60 Broadway	Service Station
Massachusetts, Malden	E. L. Kimball Company	25 Lynde Street	Service Station
Massachusetts, Waltham	Cronin Supply Company	157 High Street	Service Station
Massachusetts, Wollaston	W. S. Plummer	109 Lincoln Avenue	Service Station
Michigan, Detroit	Wm. G. Boales Company	6429 Hamilton Avenue	Service Station
Minnesota, St. Paul	Thermal Company, Inc.	2448 University Avenue	Service Station
Missouri, St. Louis	Brass & Copper Sales Company	2817 Laclede Avenue	Service Station
New Jersey, Elizabeth	Certified Fuel Unit Service Company	600 Spring Street	Service Station
New York, Albany	Certified Fuel Unit Service Company	1018 Central Avenue	Service Station
New York, Brooklyn	Eveready Specialties Company	1724 Flatbush Avenue	Service Station
New York, Brooklyn	The Capson Company	106 Rogers Avenue	Service Station
New York, Jamaica	Sid Harvey, Incorporated	138-76 Queen Boulevard	Service Station
New York, Valley Stream	Sid Harvey, Incorporated	104 E. Mineola Avenue	Service Station
Oregon, Portland	Garland-Affolter Engr. Corporation	1233 N. W. 12th Avenue	Sales Representative
Pennsylvania, Philadelphia	Certified Fuel Unit Service Company	3412-14 W. Allegheny Ave.	Service Station
Rhode Island, Providence	Providence Plumbing Supply Company	47 Pine Street	Service Station
Washington, Seattle	Garland-Affolter Engr. Corporation	532 First Avenue South	Sales Representative

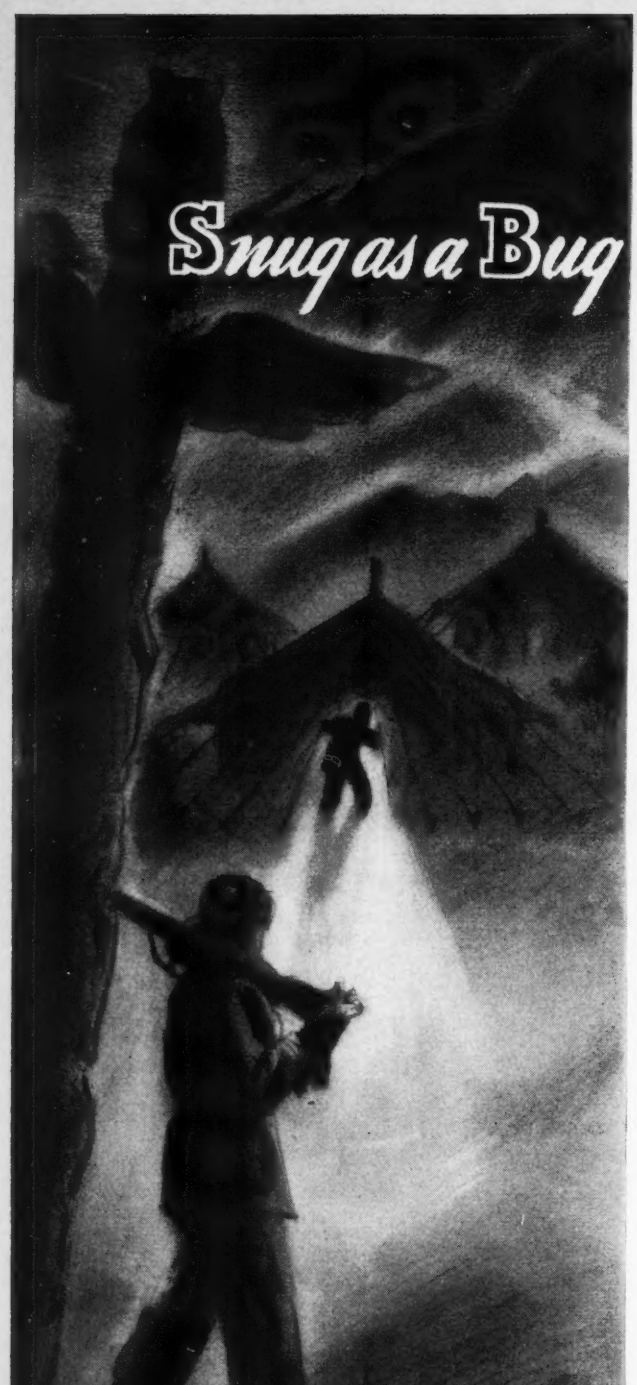


Webster Electric "Type T" Fuel Unit

WEBSTER ELECTRIC

"Where Quality is a Responsibility and Fair Dealing an Obligation"

fuelfoil & oil heat



Snug as a Bug in a Rug..

IN SPITE of bitter cold and biting wind in some of our Arctic outposts, our fighting men can still keep warm. Just inside the tent flap is warmth that defies the elements and brings comfort and relaxation when long watches are over.

All over the world, wherever our fighting men are stationed, will be found tent heaters, water heaters and cooking ranges equipped with "DL" Float Valves.

Reliability of operation and ease of cleaning and servicing make "DL" Float Valves in demand by manufacturers of this type of equipment.

When oil burning equipment again appears on the market, make sure the line you select is equipped with "DL" products.

DETROIT LUBRICATOR COMPANY *General Offices:* **DETROIT 8, MICHIGAN**

Division of American Radiator and "Standard" Sanitary Corporation

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators

BRIEFLY TOLD:

TSA's November 1 advertisement in Life Magazine, featuring "The Suburban Home" with semi-circular kitchen and living room, is bringing in a flood of inquiries which promises to beat the outstanding record of previous TSA ads.

★

New "Suburban Home" folder, now being distributed, includes detailed heating plan, floor plan, interesting notes by D. Allen Wright, architect. As a special feature, the Modern Kitchen Bureau of The Edison Electrical Institute has designed a modern arrangement for the semi-circular kitchen.

★

TSA dealers report an unusual amount of consumer interest in current Timken magazine and newspaper advertising. Aggressive dealers are compiling valuable lists of prospects planning to build new homes after Victory.

★

The next issue of Timken Heat* (Timken's magazine for dealers and their employees) will contain an authoritative article by Dr. W. V. Howard of the Oil & Gas Journal on "Exploration Methods and Their Probable Effect on Future Oil Reserves." Also a story on "Cleaning Oil Strainers" with complete information on the latest factory-approved methods.

★

We have received many appreciative messages from dealers on our policy of maintaining a full staff of service representatives in the field during this emergency—another Timken service to dealers.

★

Less than ½ of 1% of all Timken users have substituted coal for oil. An excellent testimonial to user satisfaction, when you consider the pressure put on to substitute coal for oil.

★

Timken dealers really appreciate the simplicity of the Timken Burner when they try to keep less reliable, more complicated burners in operation.

*We'd like to send you a sample copy. Please write on your letterhead and mention this ad.

ARMY E NAVY
For Production
"Well Done"

Good will shot to - - - - !

You hear it every day—

Can't get the oil burner started . . . can't get a service man . . . don't know what to do!

But you seldom hear this about Timken Silent Automatic.

First, Timken Silent Automatic burners are designed and built to require *less* service—and to be *easy to service* when something does go wrong.

Second, Timken Silent Automatic dealers and mechanics know how to fix burners so they *STAY* fixed . . . thanks to factory training manuals and schools, backed up by expert advice from factory field men, new printed service aids, and frequent factory mailings to Timken owners.

Right now, a new 16-page booklet is on its way to Timken owners all over the country, packed with suggestions on how to keep equipment in good condition and reduce the need for service.

This interest in users' welfare is earning for Timken and its dealers one of the best reputations in the industry. Supported by strong advertising campaigns in magazines and newspapers, and the finest of selling tools, this public acceptance will help to sell a powerful lot of new equipment after Victory.

There's a long record of success behind the Timken franchise. We'd like to tell you how you can profit from it.

After Victory, Timken will be ready with improved heating and air conditioning equipment and other new products for the home.

TIMKEN *Silent Automatic*

Quality Home Appliances—for Comfort, Convenience and Economy

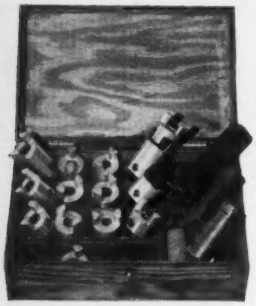
Division of THE TIMKEN-DETROIT AXLE COMPANY, Detroit 32, Michigan

Your General Headquarters for Service Parts

SID HARVEY INC.
VALLEY STREAM, NEW YORK

(Use postage paid post card below, for order or information)

HARVEY DRIVE COUPLING PACKAGE 11-A



Package 11-A....$15.00 List

Be equipped with this compact kit to make immediate coupling replacements on all standard burners. It has one each of all standard shaft sizes from 5/8" down to 5/16", each in 3 lengths, and an assortment of metal and composition center pieces. There are a total of 26 standard coupling pieces, all in a fitted wooden box. You can make any coupling from this package up to 9" long.

LIST PRICE $15.00

YES—WE HAVE MINNEAPOLIS CONTROLS at regular Dealers' Discount

We also stock special drive couplings.

A B C Model AW and Plymouth. Six-Prong. LIST PRICE: **$3.00**

Electrol Drive Adapter for standard coupling. LIST PRICE: **$1.00**

Gilbarco and Esso, Spline Link Drive (specify length). LIST PRICE: **$2.00**

Heil Leather Center Pieces. LIST PRICE: **$1.00**

Heil Rubber Center Pieces. LIST PRICE: **$1.00**

Oil-O-Matic, high pressure Model HP 3. LIST PRICE: **$1.00**

Oil-O-Matic, low pressure, 4-hole center piece. LIST PRICE: **$1.90**

Quiet May, Spline Link Drive. LIST PRICE: **$2.00**

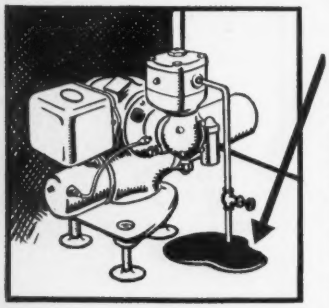
Silent Automatic Model A, Leather Center Piece. LIST PRICE: **80c**

Silent Automatic Replacement. LIST PRICE: **$2.00**

Simplex Center piece. LIST PRICE: **$2.00**

CIRCULATOR COUPLINGS

Bell & Gosset	List $3.30
Minn.-Honeywell	List 2.00
Taco	List 3.30
Thrush 7/16" x 1/2"	List 2.50
Thrush 3/8" x 1/2"	List 2.50



THE "OILY BIRD" GETS THE SPOT!

Yes, it gets THIS spot. The nasty looking oil spot that came when you cleaned the strainers. Many a nice looking installation is marred with a dirty oil spot. You can remove it as clean as a whistle with "Oily Bird." All you have to do is (1) Sprinkle it oh. (2) Rub it in. (3) Sweep it up.

Oily Bird is a coarse white granular powder that just loves oil and eats it up. In ten minutes you wouldn't know the old place. Sweep it up and use it again. It has an enormous appetite.

2 lb. package.....List $0.90
5 lb. package.....List $2.00

JIFFY JUICE REALLY CLEANS!

Grease — dirt — scum — sludge — gum — paint entirely disappear from foot valves — seats — valves — pumps — any metal parts. Hard carbon on nozzles and vaporizing heads is quickly removed.

SAFE — non-inflammable — non-toxic — safe on aluminum parts — won't harm any metal part—not acid.

ECONOMICAL — Does not evaporate — no thickening — no deterioration — it may be screened and used over and over without losing its strength.

1 Pint Service Kit containing special basket for cleaning small parts List $2.00

Refills: Pint List $1.80; Quart List $3.00; Gallon List $9.00

FILTERS

Fig. B15

Filters are the answer to trouble-free service. Install a low cost Fulflo replaceable cartridge type on every job and end clogged nozzle trouble.

Fulflo Filter AS-4 (small) LIST PRICE: **$5.00**

Fulflo Filter AS-8 (large) LIST PRICE: **$7.42**

Refills for AS-4 LIST PRICE: **80c**

Refills for AS-8 LIST PRICE: **$1.60**

Gaskets for either model LIST PRICE: **20c**

TRANSFORMERS

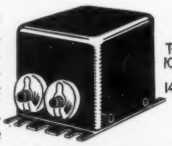


Fig. B9 Two Sizes 10,000 Volts & 14,000 Volts

We have the largest variety in the industry for any kind of oil burner. We have single pole and double pole; with the secondary outlet on the end, on the side, and on the bottom. The secondary may be 5,000, 10,000, 12,000, or 14,000 volts. The primary may be 110 volts or 220 volts. We have them with special universal mountings with small cases and large cases. You can get what you need at Sid Harvey's. Prices on application.

NOZZLES

Worn nozzles waste oil. You lo your customer a favor when you sell him a Harvey Steel Nozzle. They are famous for their accuracy and long life. Get an assortment now so that you can be sure to have the right size when you need it. The price is right. We stock the following sizes in angles of 30°, 45°, 60°, 70°, and 80°: 0.85 GPH, 1.00 GPH, 1.25 GPH, 1.35 GPH, 1.50 GPH, 1.65 GPH, 1.75 GPH, 2.00 GPH, 2.50 GPH, and intermediate sizes up to 20.00 GPH at one-half gallon intervals. Be sure to specify angle and size wanted.

LIST PRICES: Nozzles under 1 gal. capacity list $2.10
Nozzles 1 gallon capacity and over list $1.70

Cylinder Strainers for Harvey Nozzles: **LIST PRICE: 30c**

Button Type Strainers for Standard Nozzles: **LIST PRICE: 30c**

We also stock cylinder strainers for all standard nozzles. Be sure to specify the make.

SID HARVEY REPAIR AND REBUILDING SERVICE IS BACKED BY 12 YEARS OF EXPERIENCE — THE BEST EQUIPPED PLANT OF ITS KIND IN THE INDUSTRY.

Rebuilt parts carry the same guarantee as new ones. When ordering reconditioned parts, give information as to model number, type, figure number, etc.

SID HARVEY, Inc., Valley Stream, N. Y.

USE THIS POSTAGE-PAID POST CARD FOR ORDERS OR INQUIRIES

U. S. BULLETIN ★ NOVEMBER

UNCLE SAM SAYS... "SAVE FUEL"

U. S. RADIATOR SAYS... "Let's all pitch in and help keep America warm this winter!"

When Uncle Sam says "Save Fuel" he asks every one of us to share in the vital job of conserving critical materials and keeping the home fires burning this winter.

We, who are concerned with the manufacture, installation, maintenance and servicing of heating equipment, are lining up 100% behind this great program. No one can play a bigger part in insuring more comfort and better health for America. No one is in a better position to enjoy the good will engendered by an important job well done.

U. S. Radiator and Pacific Steel Boiler Division stand ready, as always, to give you every possible support in this major wartime undertaking. Whenever we can help you, your customers or clients with essential equipment or sound advice, don't hesitate to call on us.

FUEL SAVER RECOMMENDATIONS

- ★ Heat-seal all structures
- ★ Repair all system leaks
- ★ Clean heating plant regularly
- ★ Properly insulate boiler piping
- ★ Repair broken grate equipment
- ★ Follow manufacturer's directions for firing
- ★ Check radiator supply and venting valves
- ★ Remove improper radiator covers
- ★ Keep night temperature low
- ★ Maintain proper temperature level
- ★ Check controls regularly
- ★ Use less hot water
- ★ Frequent inspection of stoker or oil burner
- ★ Replace or repair all improperly fitted boiler or furnace doors

★ Use correct fuel

US RADIANT WARMTH

Member The Institute of Boiler and Radiator Manufacturers

UNITED STATES RADIATOR CORPORATION

AND

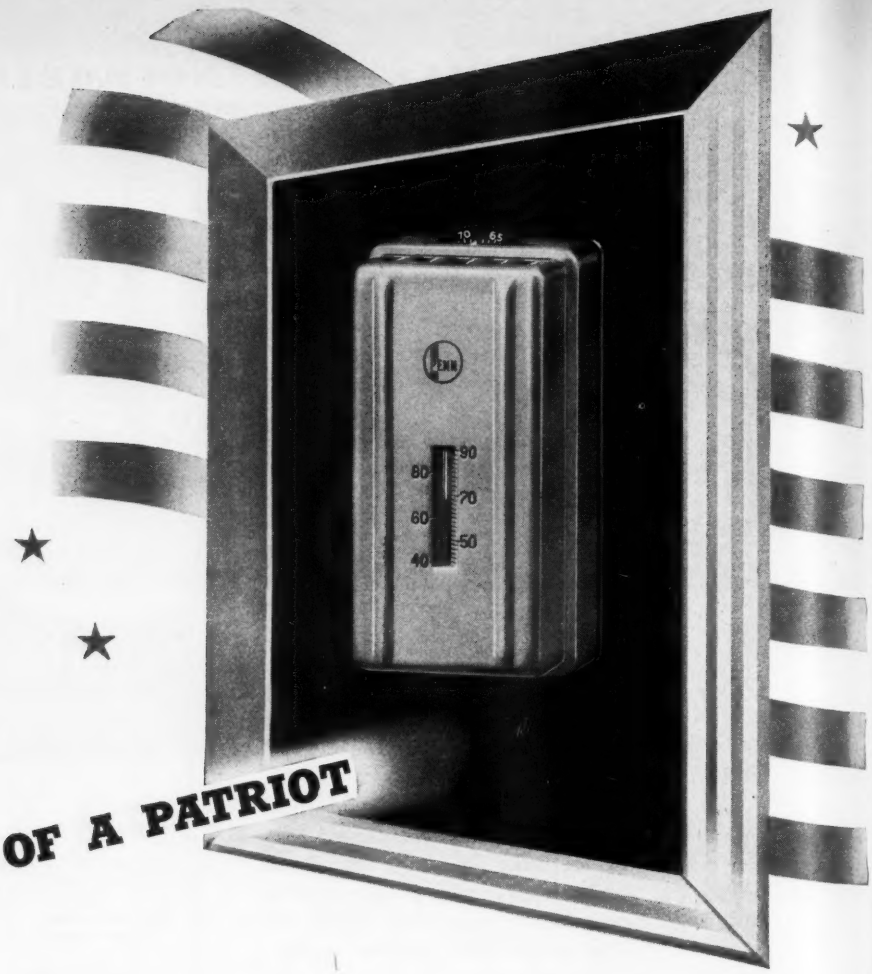
PACIFIC STEEL BOILER DIVISION

Detroit, Michigan · Branches and Sales Offices in Principal Cities

Manufacturing Plants At:

Bristol, Pa. · Detroit, Mich. · Dunkirk, N. Y. · Edwardsville, Ill. · Geneva, N. Y. · Waukegan, Ill. · W. Newton, Pa.

fueloil & oil heat



PORTRAIT OF A PATRIOT

"ZIG-ZAG heating" is uncomfortable — and wastes fuel. With supplies of coal and oil more critically short than ever, conservation is a necessity and a patriotic duty.

As a fuel saver Penn Temtrol is a patriot of first rank. This heat anticipating thermostat "senses" changes before they occur, holds temperature closely to the desired level, eliminating wide swings between "on" and "off" operating periods.

Set at the fuel-saving level which patriotism prescribes, Penn Temtrol provides more comfort, because our bodies soon condition themselves to lower temperatures, *if steadily maintained.*

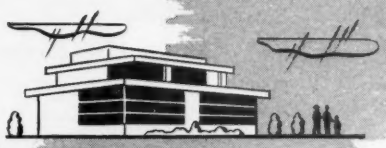
During the war *Penn Temtrol is keeping your customers sold on automatic heating.* After Victory, the complete line of Penn heating controls, further improved by the research and experience of our war-time service, *will open new avenues of profit to dealers and contractors. Penn Electric Switch Co., Goshen, Ind.* In Canada: Powerlite Devices, Ltd., Toronto, Ontario.

PENN

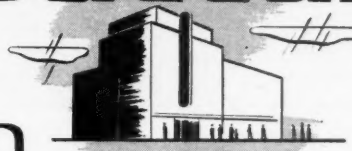
AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

AN INDUSTRY LEADER'S POSTWAR OBJECTIVES



Better *Living*



Better *Business*

with

WILLIAMS
OIL-O-MATIC
PRODUCTS

BETTER living has first call on the billions of dollars that millions of Americans are now investing in War Bonds. Better living means better homes . . . better heating . . . better cooling . . . better air conditioning. All are prominent in postwar living plans.

Oil-O-Matic will be ready! Out of Williams laboratories will come the finest line of better living products ever to bear the Oil-O-Matic name. These postwar Oil-O-Matic products will be soundly engineered, precision-built.

Better living will mean *better business* for Oil-O-Matic dealers. Every Oil-O-Matic dealer can look forward to the *leader's* share in his own postwar market.

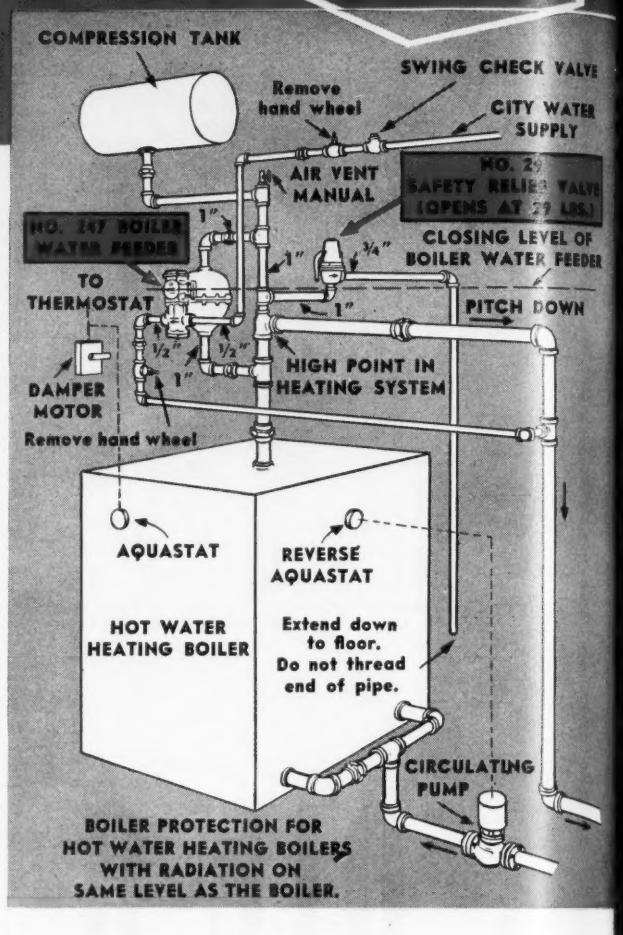
ARMY E NAVY

WILLIAMS OIL-O-MATIC HEATING CORPORATION

BLOOMINGTON, ILLINOIS

fuel oil & oil heat

How can you properly protect this type of HOT WATER heating system?


COMPRESSION TANK
Remove hand wheel
SWING CHECK VALVE
CITY WATER SUPPLY
AIR VENT MANUAL
NO. 29 SAFETY RELIEF VALVE (OPENS AT 29 LBS.)
NO. 247 BOILER WATER FEEDER
CLOSING LEVEL OF BOILER WATER FEEDER
TO THERMOSTAT
PITCH DOWN
DAMPER MOTOR
HIGH POINT IN HEATING SYSTEM
Remove hand wheel
AQUASTAT
REVERSE AQUASTAT
HOT WATER HEATING BOILER
Extend down to floor. Do not thread end of pipe.
CIRCULATING PUMP
BOILER PROTECTION FOR HOT WATER HEATING BOILERS WITH RADIATION ON SAME LEVEL AS THE BOILER.

MANY of these hot water heating plants with radiation on the same level as the boiler have been installed recently, and more of them are going in every day. The schematic drawing opposite shows the usual arrangement — and it is worth studying. It is an arrangement that provides an excellent heating system, but there have been frequent cases of boiler breakage in plants of this type where steps were not taken to guard against the conditions which cause trouble. For properly protecting this type of plant—

—the answer is the McDonnell No. 247 Boiler Water Control and No. 29 Safety Relief Valve

When trouble was reported in plants of this type, we immediately conducted an exhaustive study of operating conditions. The outcome was the application of McDonnell Equipment as pointed out by the red arrows. A McDonnell No. 247 Feeder is positioned so that it constantly maintains a water level above the high point in the main. Pressure in excess of 30 lbs. is prevented by the McDonnell No. 29 Safety Relief Valve installed as shown.

Tests have been run in which all hazardous conditions were reproduced. As a result of these tests, as well as extensive use under typical conditions, it has been fully proved that the method protects systems of this kind from boiler damage due to excess pressure, over-firing or power failure.

The features of design and construction of the No. 247 Boiler Water Control and the No. 29 Safety Relief Valve are briefly covered below. Always important, the protection of all-but-irreplaceable steam boilers, hot water boilers, heaters, and tanks is many times more vital today. Ask for recommendations and installation drawings covering any type of boiler, tank or heater needing protection.

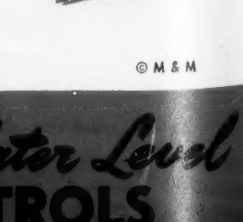
McDONNELL & MILLER, 1310 Wrigley Building, Chicago, Illinois

NO. 247 BOILER WATER CONTROL

This boiler water control, used in installations of the type shown above, incorporates the basic features of all McDonnell boiler water feeders such as straight-thrust valve action, double sylphon construction which eliminates packing, large built-in strainer, etc. It is installed with one-inch equalizing pipe. Maximum body pressure is 30 lbs. There is a type of McDonnell Boiler Feeder, Low Water Cut-off, Low Water Alarm, or Liquid Level Control for every need.

No. 29 SAFETY RELIEF VALVE

The McDonnell No. 29 Safety Relief Valve has the McDonnell Snap Action which opens up full orifice capacity when set pressure of 29 lbs. develops, assuring prevention of excess pressures in systems of the type illustrated.
All McDonnell Relief Valves have the snap action mechanism illustrated above which assures opening up of full capacity at set relief pressure. As a result, they are accurately rated in DISCHARGE CAPACITY so that they can be properly matched to boilers and tanks as required by the A.S.M.E. Boiler Code. In addition to the No. 29, which opens at 29 lbs. pressure, the series includes: No. 229, opening at 75 lbs. pressure; No. 329, opening at 100 lbs.; No. 429, opening at 150 lbs.



Doing One Thing Well

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McDONNELL *Boiler Water Level* CONTROLS

Petroleum

Past, Present and Future

By
Per K. Frolich

Dr. Frolich, director of the Chemical Division of Esso Laboratories, and president of the American Chemical Society, presented at the Society's September 8, 1943, meeting an outstanding paper on the petroleum supply. This article, a digest of that paper, is presented with firm belief in Dr. Frolich's statement that "the millions of American Families who are dependent upon petroleum for heating their homes can also be counted on to have a genuine interest in the future of our oil supplies," and that the oilheating industry must have the facts.

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A GREAT DEAL of attention is currently being devoted to the petroleum situation. Until a short while ago we were primarily concerned with the transportation problem. The question of getting available petroleum products to where they were needed seemed to overshadow all other consideration. Now that the transportation difficulties gradually are being overcome, our interest is turning to the question of the country's abliity to produce the crude oil required to supply the present and future demands for petroleum products. In view of the importance of an adequate supply of oil from the standpoint of the wartime requirements as well as our every-day civilian needs, it seems particularly timely to review some of the technical aspects of the situation.

During the recent period of expanded crude oil production, our entire mode of living has become geared to the use of petroleum products. Industry, agriculture and shipping alike are large consumers of a multitude of hydrocarbon materials derived from petroleum sources. The list includes such varied products as industrial and process oils, greases and extreme pressure lubricants, asphalts and road oils, solvents and insecticides, and an ever-increasing number of chemical raw materials and derivatives. The petroleum chemicals business which already had contributed a considerable volume of various alcohols and related products, has recently been called upon to increase several fold the country's supply of toluene for explosives and to furnish two-thirds of the butadiene required for the synthetic rubber program.

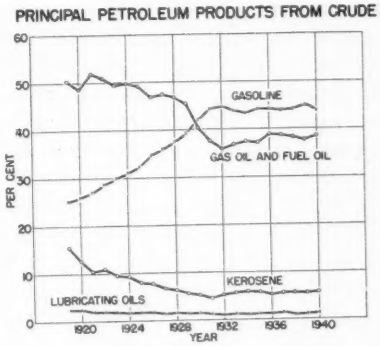


Fig. 2

The four main classes of products shown in Fig. 2 add up to account for some 90% of the materials derived from crude oil. The group of products included in the classification fuel oil rank next to gasoline in volume. Heating oil accounts for some 25% of the total fuel oil consumption. About two-thirds of this is used for heating of homes. Although it may be easier to heat a house than to run an automobile with a substitute fuel, the millions of American families who are dependent upon petroleum for heating their homes can also be counted on to have a genuine interest in the future of our oil supplies.

The position of the United States as a producer of crude oil is shown by Fig. 7. From the data given it is apparent that prior to the war we supplied some 63% of the world's petroleum requirements. At the present time the figure is higher. Although considerable crude from other sources normally is worked up in American-owned refineries located outside the United States, our actual import and export of crude are small in comparison with the domestic production. The volume of refined products imported has been about equal to that of the crude oil import, while the export of refined products has been running 20-40% higher than the figures for crude export. In other words, the United States production of crude oil has been in rather close balance with our domestic requirements of petroleum products.

The rate at which crude oil has been withdrawn from the ground is shown in Fig. 10 by the lower curve labeled "cumulative production." The upper curve

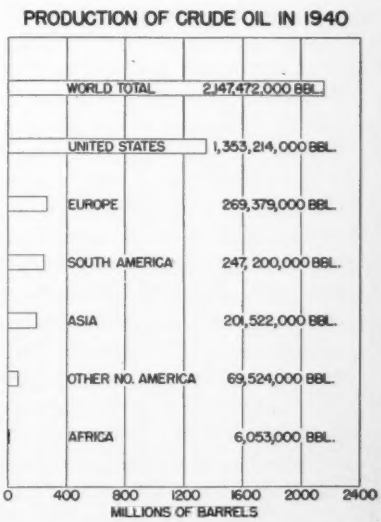


Fig. 7

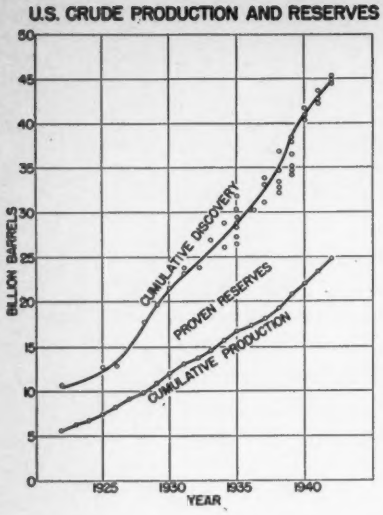


Fig. 10

shows "cumulative discovery," the somewhat scattered points indicating the estimates made by various authorities at the time indicated. The vertical distance between the two curves represents the "proven reserves" at any one time. These are the oil reserves which according to our best estimates are known to exist in the ground. As of July 1 of this year, the known and untapped reserves amounted to 20.4 billion barrels,[6] or sufficient for perhaps 15 years of our normal requirements. The proven reserves outside the United States are slightly greater, about 22 billion barrels. Of this oil located in other parts of the world Britain controls about 50%, Americans 25-30%, and Russia around 20%.[17]

From the data shown in Fig. 10 it is seen that, except for a period in the 20's when a shortage was seriously feared, the proven reserves have always kept ahead of production by a rather comfortable margin. However, only part of the growth in reserves shown is due to discovery of new fields; the remainder is made up of extensions of existing fields. As a new field is being developed by the drilling of additional wells, information is obtained which may lead to an upward revision of the originally estimated volume of oil present. This is what is meant by an extension to an existing field in contrast to the discovery of an entirely new field. The trend of actual discovery is brought out in Fig. 11 which shows the present estimates of the ultimate recoverable oil in the fields discovered each year since 1918. From this it is apparent that there has been a deficiency in new discoveries as compared with consumption of crude since 1939. It is this lag in the discovery of new petroleum reservoirs which now is the subject of so much discussion.

Normally the 15-year back-log of crude reserves would have given the petroleum industry the opportunity to work out its supply problem over an extended period of time. If it had not been for the war, we would probably not have heard much about an impending crude shortage at this particular moment. It is the necessity for providing the Allied forces with their petroleum requirements for a global war which has aggravated the situation.[5] Before attempting to explain why this is so, it may be well to see what is involved in the war requirements.

In a recent report by W. R. Boyd, Jr., Chairman of the Petroleum Industry War Council, mention is made of "the tremendous military demands for petroleum, which because of censorship have not been revealed to the oil industry, and already, exclusive of huge amounts of aviation gasoline and lubricants, is equivalent to about 25% of the total current production of crude oil in the United States. This demand has an even greater effect because the manufacture of special war products, particularly aviation gasoline, requires a disproportionate amount of the capacity for the manufacture of motor gasoline."[18] According to Petroleum Administrator Ickes, 60 per cent—or nearly two out of every three tons—of the supplies sent overseas to our expeditionary forces over distances varying from 3,000 to 10,000 miles are oil.[7] Using President Roosevelt's figure of 1110 gallons of fuel per bomber, a thousand-plane raid in the European theater of war consumes more than one million gallons of aviation fuel, or the equivalent of about one-third of the cargo carried by a modern tanker. The situation is aptly described in Premier Stalin's toast at the time of Prime Minister Churchill's visit to Russia: "This is a war of engines and octanes. I drink to the American auto industry and the American oil industry." Or as Ickes has expressed it: ". . . the side that can throw the most oil into the fray over the longest period of time will win."[7]

To meet these requirements, the United States is now producing crude oil at the rate of more than 4,200,000 bbls./day. To illustrate what this figure means, we may observe in passing that it represents well over four times the production during the height of the last World War in 1918. It takes only 4-5 days' production at that rate to equal the annual pre-war consumption of petroleum and related products in the whole of the Italian Empire with its population of 45,000,000.[13] It requires less than 10 days to equal the most recently estimated yearly production of crude in Rumania, which is the chief supplier of petroleum to the Axis powers.[14]

Large as the current production is, it may at first sight appear strange that it should represent much of a drain on the reserves of some twenty billion barrels known to be in the ground. The explanation is that there is a "rate of withdrawal" factor involved. To fully understand this problem we must remember that crude oil occurs in the ground in porous rock, the permeability of which governs the physical rate at which the oil can be withdrawn. Also, oil contains no inherent energy and it must therefore be displaced from the reservoir rock either by expanding gas associated with it or by water. It does not require any specialized knowledge of engineering to appreciate that in dealing with such a heterogeneous system, the efficiency with which the oil is displaced improves with reduced rate of production. Conversely, high rates of withdrawal result in inefficient flushing of the oil from the reservoir rock and consequent reduction in recovery. This imposes certain restrictions on the country's capacity for producing petroleum.

Production Rate a Problem

In other words, there is no immediate shortage of oil which is known to be in the ground. The problem with which we are confronted is rather one of being able to withdraw this oil at the desired rate. Although in some fields which are being operated on the best engineering principles the natural gas is pumped back into the ground to aid in bringing still more oil to the surface, there are many older fields where all or most of the gas has been withdrawn leaving an inordinately high percentage of the original oil to be taken out of the ground by secondary recovery methods.

We next come to the question of the oil which has not yet been discovered. It

is of course difficult for anyone to make a reliable estimate of the possible hidden reserves of crude. The viewpoint of the petroleum geologist is presented in a series of lectures by Wallace E. Pratt published under the title "Oil in the Earth."[17] Pratt discusses the prospects of finding oil in terms of the subterranean structures and the efforts to explore these structures for their oil deposits. Of the crude so far discovered and developed world-wide, some 54% is accounted for by the search within the United States (Alaska not included). While this country constitutes only 5% of the land area of the earth, it contains 15% of the area of the structures most favorable for the occurrence of oil fields. If exploration by drilling is extended over this total area and if per acre yields equal to the average of the already proven areas are assumed, it would appear that the United States ultimately should give up at least 100 billion barrels of oil, including the 46 billion barrels which represent the total discovery (production plus reserves) to date. On the same basis, the rest of the world would ultimately produce some 600 billion barrels of oil, including the 38 billion barrels already found. Such considerations lead to the conclusion that "at the present rate of consumption the probable ultimate oil resources of the earth, made available and freely distributed, should meet humanity's needs for 300 years to come."

How to go about locating these potential oil reserves is a problem with so many technical and economic aspects that an adequate discussion cannot be undertaken as part of this brief review. The fact of the matter is that not even those best qualified to have an opinion on the subject can tell for sure how long new oil will continue to be brought in at the rate it is needed. It is this situation which has aroused so much recent comment, and which quite logically leads to the question where we stand with respect to alternate sources for the products which we now obtain from petroleum.

To most of us it does not mean very much when we are told that the country's proven natural gas reserves amount to some 95 trillion cubic feet.[16] A little figuring will show, however, that on a weight basis this is equal to about 75% of the proven reserves of petroleum. At the present rate of consumption the proven gas supply should last about 30 years, or twice as long as the oil supply. Methods are known for converting these natural gas hydrocarbons into liquid petroleum fractions. The heavier constituents can be processed by such direct methods as cracking or dehydrogenation, followed by polymerization and alkylation. Methane, however, which is the major constituent

(Continued on page 62)

U.S. ANNUAL DISCOVERIES AND CONSUMPTION

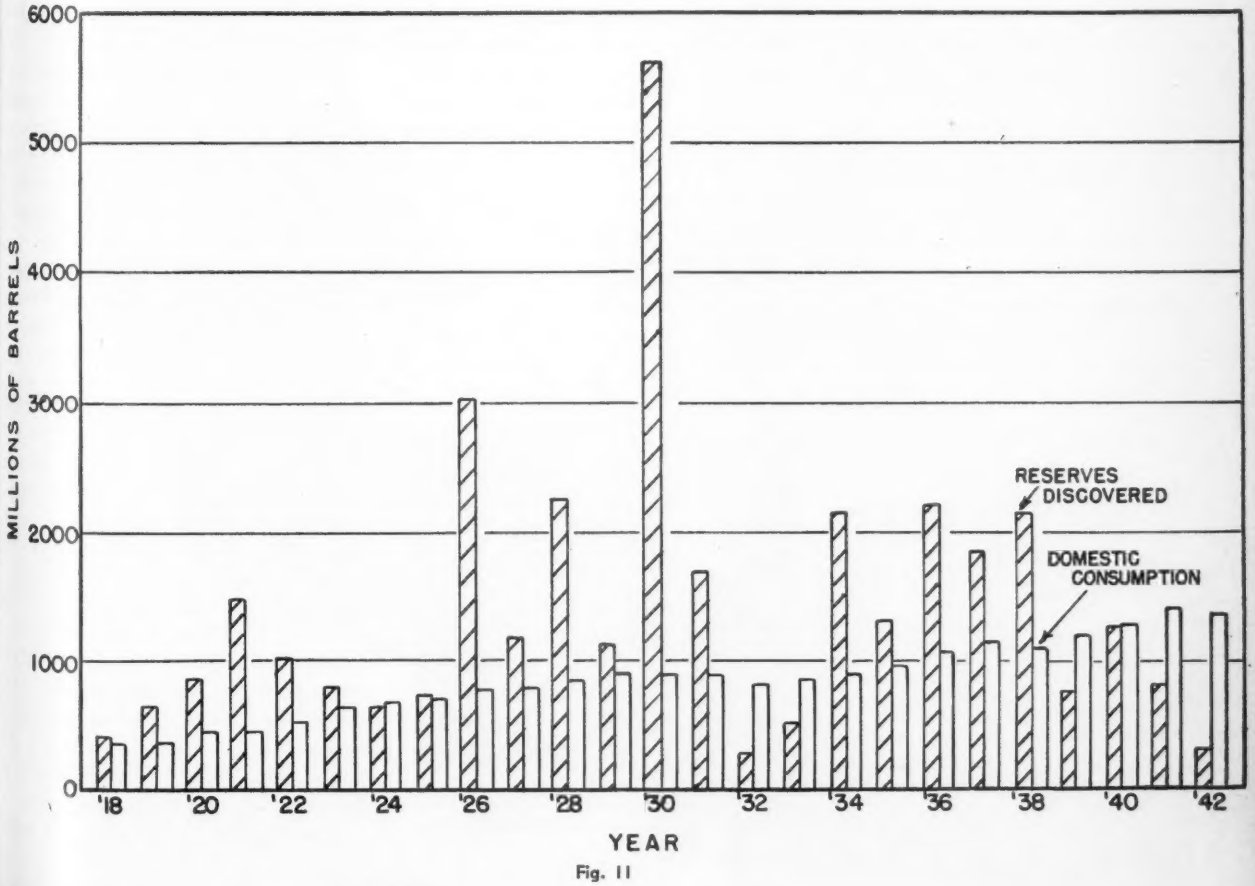


Fig. 11

Adjust or Insulate?

Both Are Important; Both Save Oil, but Dollar Values Differ

By
Henry D. Crane

ALONG about the middle of May 1942, three tankers left a Gulf coast port in Texas loaded with fuel oil. A day out of port they separated but all three headed in the general direction of Key West. The one which took the south most course was torpedoed by a submarine 100 miles off the Florida coast and was sunk without the rescue of a single survivor. The other two tankers proceeded on their way and about five days after leaving port, one was torpedoed off the coast of South Carolina. The ship was broken in two and the forward half sank; the after half was picked up by a sea-going tug and towed into Wilmington. Most of its cargo was lost and what was left was no good. The other tanker got through to Bayonne, New Jersey, but was shelled off Cape Hatteras by a submarine which was shelled away before it had a chance to launch a torpedo. One man was killed. The next day a storm broke off Cape Hatteras and one man was lost overboard. This last tanker carried 100,000 gals. of oil consigned to South Brooklyn Oil and Burner Company.

This company was the agent for Prickly Heat oil burners and had sold about a 1,000 burners to various home owners on Long Island. They also sold the oil to those people and for a small annual fee had been servicing the burners.

They had sold 57 oil burners to a real estate development in Long Island known as "Sherlock Homes." All of the houses in this development are two story houses and none of them was insulated. They were all equipped with pretty good boilers but because the profit on the contract wasn't very liberal, the oil company did not take too much care in the installation of the burners. They were not adjusted very well. In fact the operating efficiency was something like 55%.

This tanker with its 100,000 gallons of oil was unloaded and during the summer and through the winter, oil was delivered to these 57 houses. They all took about the same amount, approximately 1,750 gallons each. In other words they used the whole consignment.

Where did this oil go? In order to answer that question an analysis is made of the construction of these houses and the operation of the burners and that analysis shows that during the following winter the oil was disposed of as follows:

	Gals.
Lost through ceilings	13,800
Lost through windows	15,700
Lost through walls	20,400
Lost through cracks	5,100
Lost up the chimney	45,000

Of course all this oil wasn't lost; it heated these 57 houses fairly satisfactory to 70° all during the heating season and the oil that went up the chimney kept the chimney hot enough so that the draft was all right, but the table shows how the oil was utilized. This oil cost the home owners .08 a gallon or $8,000. So in terms of dollars the $8,000 oil bill was distributed as follows:

Lost through ceilings	$1,104
Lost through windows	1,256
Lost through walls	1,632
Lost through cracks	408
Lost up the chimney	3,600

Suppose that the 57 home owners in "Sherlock Homes" had winterized their houses but hadn't done anything about their oil burners. In other words they had put in all the insulation, all the storm windows and weather stripping that the Office of War Information told them they ought to install but the oil burner was left in the same shape. If this had happened they would only have had to buy 50,000 gallons and the other 50,000 gallons would have been available for some other houses in the neighborhood. This 50,000 gallons would have been lost as follows:

	Gals.
Lost through ceilings	2,750
Lost through windows	6,250
Lost through walls	7,750
Lost through cracks	3,550
Lost up the chimney	29,700

The dollar cost would be distributed in accordance with the proportions in this table.

A greater proportion of the oil was lost up the chimney because the burner, in addition to operating inefficiently to start with, was now much too big for the job that it had to do and then standby losses were very much higher in proportion.

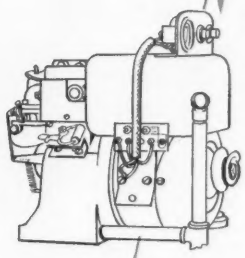
Now suppose these 57 home owners had appealed to their oil burner serviceman or suppose the oil burner company had recognized the fact that large amounts of fuel were being wasted up the stack and they decided first that they would improve the efficiency of their oil burners. They would improve that efficiency only to the extent specified by the minimum requirements in the National Bureau of Standards' Commercial Standard for oil burner operation and the cost of doing this job would only have been three to five dollars per burner and would have involved no additional material. The job was merely a matter of adjustment. This would have reduced the oil required from 50,000 down to 34,000 gallons, and the saving of 16,000 gallons would have been due entirely to proper burner adjustment.

Now suppose the oil company went

(*Continued on page 65*)

Some burners *need only to be adjusted; others should be reinstalled where load has been greatly reduced.*

"Turn on 'Little Joe'... we've got a job to do"



"LITTLE JOE"—one of the various types of Delco-Light Engine Generators now in the service of the United Nations.

In the same sense they call a powerful man "Babe", mechanics have always called a certain Delco-Light Engine Generator "Little Joe".

Necessity for increased power to operate gun turrets and perform other duties in tanks has produced an even huskier "Little Joe". Today, on the war fronts of every continent, technical troops of the United Nations are calling for "Little Joe" to be cut into circuits whenever normal electrical power needs a lift. Delco-Light Engine Generators are doing a big job.

Ability to meet unusual requirements is a typical American trait. Delco Appliance claims no monopoly on it—is merely glad it possesses the mass-precision skill and facilities for mastering tough problems.

There's a Great Day Coming!

Today, at Delco Appliance, *"Victory Is Our Business"*, but when that "great day" of peace comes, we will hasten to bring you the new and better home and farm appliances our *"know how"* will help us build.

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ROCHESTER, N. Y.

DIVISION of GENERAL MOTORS

During War or Peace DELCO APPLIANCES Do the Job Better

YOUR DOLLARS HAVE A JOB TO DO, TOO

Stop the war even one hour sooner and thousands of lives will be saved. When you buy War Bonds, you shorten the war and save lives. Perhaps the life of someone you know. That is the job your dollars have to do.

BUY *Another* WAR BOND *Today!*

Fueloil = oil heat

Efficiency with Heavy Oil

Conservation Demands Best Fuel Utilization

By
M. W. Crew

Competent authorities have stated that probably 20% of all fuel burned in small industrial plants and up to 40% of that burned in the average heating plant is wasted. This waste is due to lack of efficiency in boiler operation plus the additional loss due to overheating. The modern large plant of today operates from instruments, supplemented by automatic controls and supervised by its personnel. While the average heating plant cannot hope to attain the efficiencies maintained in these large stations, it is nevertheless possible by choosing equipment wisely and by maintaining rigid operating standards to eliminate the greater percentage of waste occurring in the average steam boiler plant.

COMBUSTION efficiency depends on the correct quantity of air being available to turn any given unit of fuel. When the supply of air is inadequate, the combustion cannot be complete. When the air supply is excessive, this air in greater quantity than the fuel is capable of consuming, dilutes the heated gases and reduces the total temperature of the gases of combustion, with attendant lower furnace temperatures.

Overall efficiency is the total result of the combustion efficiency and the degree to which the useful heat created is absorbed by the water in the boiler.

Regardless of the efficiency with which fuel is fed and burned (CO_2), excessive losses can be sustained in the process of heat transfer if proper consideration is not given the transfer of heat to the water in the boiler.

Maximum efficiency of heat transfer depends on the cleanliness of the boiler heating surfaces, and the time allowed the gases to give up their heat. This time is dependent on the rate of travel (draft) with which they are drawn across the heating surfaces.

Maximum overall efficiency, the production of steam at the lowest possible cost, is therefore dependent on proper combustion, boiler cleanliness, and on so controlling draft that the maximum of useful heat can be utilized.

Boilers equipped with modern automatic firing equipment are capable of a high degree of efficiency and economy when such firing equipment is augmented by proper instruments for the guidance of the operator.

Secondary Control of Heating

When a boiler plant is operated solely for the purpose of heating a building, its rate of fuel burning should be governed by the heating requirement rather than by a pressure switch or pressure indication. It has been customary to operate automatically fired boilers in multi-occupancy buildings, controlled solely by the boiler pressure, maintaining constant pressure at all times, or for long periods. Under such conditions, from 20% to 50% of the total steam generated is wasted. The average heating system is designed to heat a building satisfactorily when outdoor temperature is zero or less. Consequently, it is only under most severe conditions that the maximum capacity of the plant is required. Zone heating controls and "weather" controls have enjoyed wide acceptance in recent years. National surveys of buildings using this equipment demonstrate average savings in excess of 22% while in many cases the percentage of saving has been considerably higher.

When such controls are of the electrical switching type, they can be used either to stop and start automatic firing equipment using the pressure switch only as a limiting device. In more modern practice, they can be used to operate the modulating equipment, insuring that when the building temperature requirement is being met, the rate of fuel burning will be at the minimum rate rather than completely stopped. Under this latter method of operation the sustained efficiency of the boiler is much higher since the stop and start method of operation is necessarily wasteful. Anyone who contemplates a program for the reduction of fuel consumption should consider the installation of such equipment. When this type of equipment is used in conjunction with modern automatic control of the fuel burning process, it assures the greatest possible economy.

M. W. Crew
Perfex Corporation

Natural Draft Oil Burning

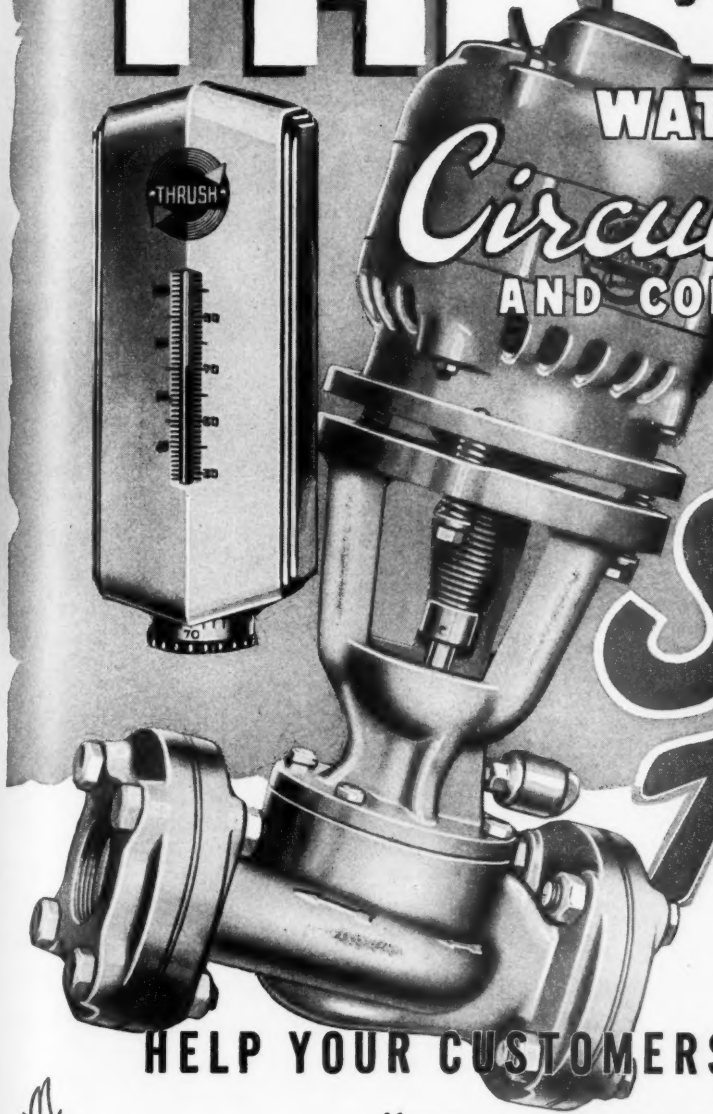
The proper combustion and utilization of liquid fuel must be a finely balanced process for maximum efficiency and economy. Failure to control fuel feed, air supply and draft adequately and properly, defeats the high efficiencies of which modern oil burning equipment is capable.

A gallon of oil (Bunker C) requires 2,000 cubic feet of air at 100° input for proper combustion. For purposes of calculation, 10 cubic feet per minute, per horsepower developed or 33.3 cubic feet per minute per gallon per hour. Various burners furnish different percentages of

(*Continued on page 57*)

THRUSH

WATER *Circulators* AND CONTROLS



Save Fuel

FOR VICTORY

HELP YOUR CUSTOMERS AND COUNTRY!

HERE IS your big chance for real wartime service! The War Production Board expects the heating industry to help home owners conserve fuel this heating season. Reducing needless fuel waste will ease the strain on transportation, release greater supplies for ships, tanks, and planes on the battle fronts, and ease critical shortages everywhere. Do this for your customers, now! Recommend and install Thrush Water Circulators and No. 201 Thrush Radiant Heat Controls (special anticipating room temperature thermostat) on Hot Water Heating Systems, and you will not only be doing your customers a favor, making a profit for yourself, but helping speed victory. Time is short. See your wholesaler today or write Department C-11.

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H. A. THRUSH & CO., PERU, INDIANA

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"WHERE CAN I GET NIGHT SERVICE?"

"WHO IS A RELIABLE OIL BURNER MAN?"

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. . . IF YOU PUT YOURSELF IN YOUR PROSPECT'S PLACE
. . . ANTICIPATE AND ANSWER HIS QUESTIONS ABOUT YOUR SERVICE

This man, no doubt like many in your community with problems of oil burner repair, needs *your* help. And as the war goes on, his problems may increase.

OIL BURNER SERVICE
ON ALL MAKES
24 HOUR SERVICE
EFFICIENCY TESTS FOR FUEL ECONOMY
Licensed *Bonded*
JOHN DOE CO.
1234 Central St.
WAlnut 5-6789

He turns the pages of the Classified telephone book, hoping to find the answers. Does *your* advertising there tell him about your service and its special features?

If your ad gives the information he is most likely to be interested in, you are in a position to get his call—and order.

Why don't you call the Business Office of the Telephone Company now? Ask for a Directory Advertising Representative who can tell you how to point up your Classified ad for better results.

Industry United in Attack on Immediate and Postwar Problems

MEETING for the first time as a united oilheating industry, members of the three divisions of Oil-Heat Institute of America convened at Chicago, October 10, 11 and 12, in one of the most significant meetings the industry has held in years. About 200 representatives of members in the Manufacturing, Accessory and Distribution Divisions attended three full days of meetings.

This first meeting of the unified industry marked an auspicious start on a more active oilheating association. Heated discussion of distribution problems and the active participation of members from the floor marked sessions of the Distribution Division, and brought favorable comment from the manufacturers and accessory men who sat in to observe. For the first time since the manufacturers were trying to agree on Commercial Standards, the studied reports of hard-working committees were thoroughly dissected before approval.

Sessions of the manufacturers and accessory groups were confined largely to reports of committees on work already accomplished and to aspects of post-war business. In contrast, Distribution Division session were mainly concerned with current problems which at many points touched the membership's ability to survive in business during the war period. Representatives of the 21 member associations have definite opinions on most current problems, and have no hesitancy in expressing them.

When associations now being formed in Iowa and Nebraska and local groups in Baltimore and Rochester have become affiliated with OHI, the Distribution Membership will cover an area representing 91% of the heating oil sales in the country.

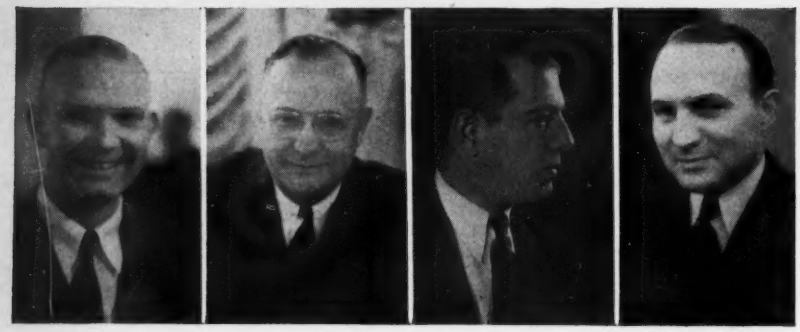
Chief problem concerning all divisions of OHI is the effect of the publicity on possible short United States oil reserves on the market. Though all branches of the industry are confident that oil for heating will be available, the problem of getting this conviction planted in the public mind is yet to be thoroughly solved. President C. E. Lewis outlined the work already done, and huddles of manufacturers were discussing more dramatic action for the future.

The semi-annual meeting of OHI opened Sunday afternoon, October 10, with a meeting of the Post-War Planning and Advisory Committee under the chairmanship of W. A. Matheson. With a World Series baseball game in progress, several football games going on, and perfect Indian Summer weather outdoors, 48 men spent a long afternoon studying progress reports of the various sub-committees.

W. A. Kemp, chairman of the subcommittee on Oil Supply submitted a preliminary report based on confidential information collected by himself, J. F. Corrigan and Fenton Fisher. In an ex-

Top, left to right: W. A. Matheson and Earl Nesmith, Oil-O-Matic; C. E. Lewis, Delco; Herb Witte, Underwriters Labs.; C. R. Collins, May; R. N. McDonnell, McDonnell & Miller; Arthur Hanson, Waterfilm Boilers; Ben Weichers, Webster Electric.
Center: Fenton Fisher and Hugh Courteol, Mercoid; W. E. Foskett, Kewanee Boiler; S. J. McCarthy, Norge; C. E. Pullum, Bell & Gossett; Georges Faurie, Delco; W. A. Kemp, Sundstrand; C. G. Cleaver, Wayne.
Bottom: M. A. Powers and A. T. Crawford, Timken; Paul Addams, Fitzgibbons Boiler; A. H. Lockrae, Minneapoils-Honeywell; C. T. Harnett, Jefferson; Robert Johnston, S. T. Johnson; J. W. Owens, Mercoid; J. A. Lattner, Century Eng.

Distribution Division Officers



M. N. Vining
Western Vice-Chairman
Seattle, Wash.

Frank E. Spencer
National Chairman
Chicago, Ill.

G. J. Burrell
Eastern Vice-Chairman
Harrison, N. Y.

Ray F. Horan
Secretary
New York, N. Y.

tremely conservative report, the committee's careful study indicated that there would be sufficient oil for burning for many years to come. The report dismissed current wartime shortages as product of unusual conditions that would not be significant in the long-term aspect of the problem, though it recognized without alarm the possibility that we may import more oil in the post-war period than has been necessary in the past. Preliminary studies of the committee indicate "a minimum annual sale of 300,000 burners in the immediate post war years . . .

"Your committee has concentrated on a statistical study of the major factors of *overall* petroleum production and use," says the report, "and has already accumulated a voluminous file of statistics and statistical estimates, much of which is currently confidential as to source and the exact figures. However, this information forms the basis for the facts and opinions included in this report, and much of it will be released for definite inclusion in, or as a bibliography for, the committee's final report at a future date.

"This data shows rather clearly that there is no foundation for the fear—or even the current fearful discussion—about the need for imports of petroleum in the immediate or middle future. This country has been importing as well as exporting petroleum for years; it has been a normal function of international business, and since it has not had any major effect in the past there is no sound reason to expect its continuance into our post war world to bring about any revolutionary changes or work any hardship on our industry. As a collateral fact of some small value, we should remember that we have been the world's largest consumers of coffee and rubber for many years, but have never produced either of these products.

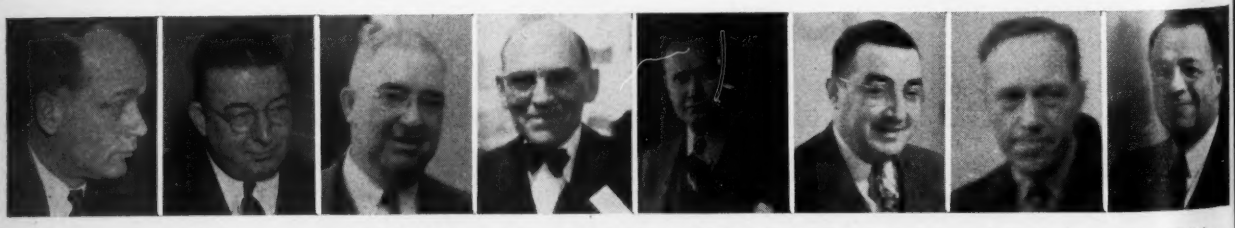
"On broadly similar reasoning, the current discussion of so-called wildcatting, does not appear to be of major importance to the scope of this committee's assignment, which has to do with the overall future. The current argument and publicity on wild-catting concerns immediate month to month supply and even more particularly it is concerned with comparative prices under today's war-boosted demand and circumstances. Study of the basic factors indicates this current wild-catting agitation is more political than economic, in both the government and commercial uses of the word 'political.'"

Reporting for W. F. Rockwell of the Subcommittee to work with Oil Refiners and Marketers, A. T. Crawford indicated that current oil shortage publicity is harmful to the market. He quoted surveys that Timken has made that indicate 45% of people planning to build or renovate after the war will buy oilheating, and that slightly more than 19% who now have oil will change to other fuel. It was felt that some of the present adverse publicity could be offset by individual oil company effort to preserve the market. Harold W. Sweatt, committee member, concurred in the report.

Milton A. Powers reported that contacts with boiler manufacturers indicated an increase in the use of hot water heat if cost can be kept down. It is expected that houses in the immediate future will have heat losses of from 20,000 to 70,000 Btu per hour, and will be fired well below a gallon of oil per hour, possibly about a half gallon per hour. It has been recommended that boilers for the future small house have a combustion chamber 12 inches wide or 12 inches in diameter. It was pointed out that burners for these houses must be able to burn as little as one-half gallon per hour without trouble. Earl Nesmith reported on contact with the University of Illinois where research is being conducted for the boiler industry as well as the warm air heating association. It was suggested that the industry might use these testing facilities for oilburning research.

Albert Penn's report on Overall Postwar Markets indicated a probable construction of slightly more than a million dwelling units a year for the immediate postwar period, though no attempt has been made to estimate the probable proportion of this market that would be heated with oil. It is believed that no more than half the dwelling units built during the war will be usable in postwar.

Hugh Courteol, reporting for the subcommittee on Finance, recommended that



H. W. Sweatt
Minneapolis-Honeywell

John Pauling

E. M. Ford
Webster Electric

S. A. Loeb

Malcom Henning
Penn Switch

N. L. Lavorgna
L. J. Mueller

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QUIET MAY OIL BURNERS

Serving on the war front with many vital war machines. *Conserving* on the home front, stretching every drop of precious oil in Quiet May Oil Burners . . . In war — in peace — in a tank — a plane — in a ship — or in Quiet May Oil Burner in your home — GEROTOR proves it's prime importance! After Victory GEROTOR'S faultless performance will make it *easy* for you to sell Quiet May Oil Burners again.

MAY OIL BURNER CORPORATION, BALTIMORE, MARYLAND

GEROTOR

HYDRAULIC PUMPS

On a world-wide proving ground no job has been too tough for **GEROTOR**

Distribution Committee Chairmen

J. E. Rowland
Ch., Executive Comm.
Philadelphia

Lester Scott
Ch., Legislative Comm.
Washington, D. C.

W. F. Schierholz
Ch., Business Manag'm'nt Comm.
St. Louis

L. L. Jacobs
Ch., Postwar Comm.
Philadelphia

the Institute use the multiple talents of its membership rather than try to buy with a larger budget, much less experienced men to do the industry's work. It was felt that the present budget is sufficient for the immediate future.

Members of the Distribution Division, on October 11, received the reports of their four committees, and heard a summary of the progress of the Division from Chairman Frank E. Spencer. Mr. Spencer outlined the various activities of the group since its organization in June, and reported membership progress that already has affiliated 21 of 28 territorial associations with OHI. Only one area, according to Mr. Spencer, has not yet signified its intention of joining the Distribution Division.

Reporting for the Executive Committee, J. E. Rowland, chairman, outlined a proposed bulletin service consisting of semi-monthly flash bulletins, possibly to come from Washington, giving the membership late news on government regulations; a monthly news bulletin of a more general nature; and a less frequent educational bulletin to present matters bearing on management and outlining methods for the better conduct of members' businesses. The committee also recommended some means of identification for the membership to show their affiliation with Oil-Heat Institute as a national organization.

Lester Scott, chairman of the Legislative Committee, told of the work of his committee in Washington, where it has consistently opposed the conversion program, worked for the distributor panel on Oil Rationing, and fought for the revision of Petroleum Distribution Order No. 13 (which replaced L-56). The committee also outlined the requirements to get "locally needed" designations for oil truck drivers and service men, and recommended that each association assemble the facts necessary locally to get this designation, since there was little chance that any nation-wide action would be taken to exempt the industry's men from induction or transfer into war industries. The committee is continuing its work with government agencies toward restoration of dealer margins on fueloil, and establishment of a differential for small drops in all parts of the country.

W. F. Schierholz, chairman of the Business Management Committee, presented two resolutions adopted by the Distribution Division. One to the Office of Price Administration, asked that emergency rations be authorized in minimum amounts of 50 gallons for range oil; 100 gallons for domestic heating oils; and 500 gallons for industrial oils, in an attempt to avoid making uneconomic small deliveries. The other resolution asked ODT to issue a directive providing minimum fueloil deliveries of range and domestic fueloils of 60% of the total storage capacity, and at all times that storage tanks be filled to full safe capacity on each delivery, with no deliveries of less than 100 gallons; except where the tank is of less than 100-gal. capacity or the customer is economically unable to accept as much as 100 gallons. Industrial oils would be delivered in minimum quantities of full truck deliveries, or not less than 60% of the full storage capacity of the tank. Exceptions allow deliveries where a dealer has a truck in the neighborhood; deliveries to the total amount of valid coupons; and provide for prorating short supplies.

Lionel L. Jacobs, chairman of the Postwar Planning Committee, recommended (1) publicity to offset the damage done to the industry by adverse publicity on oil shortages; (2) an employment plan to attract the better type of men to the industry postwar; (3) collection of data on dealer operating costs; (4) a means of distributor participation in builder business in his territory; (5) a constructive labor policy looking toward the elimination of waste and harmful restrictions; (6) simplification of commercial standard oil grades, and (7) formation of a committee to negotiate with major oil companies and other primary suppliers where members have trouble getting supply.

OHI directors elected seven companies and six associations to membership at their quarterly meeting. Manufacturers Division additions were Electrol, Inc., and Quaker Mfg. Company. New Accessory Division members are Bell & Gossett, Heating Publishers, Inc., Marsh Tritrol Co., Waterfilm Boilers, Inc., and Wheelco Instruments Co. Associations elected to the Distribution Division included Oil Heat Institute of Wisconsin, Milwaukee; Oil Heat Association of Western New York, Buffalo; Missouri-Kansas Oil Heat Institute, Kansas City; Twin City Oil Burner Association, St. Paul; Oil Heat Division of the Electrical Association of Indianapolis, and the Chicago Oil Burner Association.

Fred N. Beckwith
Director, OHI
Boston

Howard Johnson
Detroit

H. M. Mottram
Milwaukee

E. E. Hadlick
Director, OHI
Minneapolis

Available NOW to ★ Fluid Heat Dealers

Your peak heating season is just ahead. . . and a tough one it's going to be in view of labor and material shortages. To help you make the most of it we're ready to supply you with Fluid Heat replacement parts and equipment listed below. There's plenty of business to be had because much equipment needs replacing and many jobs need new parts to keep them operating for the duration. So, write for our latest Service Manuals, Equipment and Parts Price Lists.

★ FLUID HEAT Replacement Equipment

We can supply, under usual priority regulations, standard Fluid Heat steel Boiler-Burner units, capacities ranging from 300 to 525 sq. ft. steam radiation; Air Conditioning Furnaces, capacities ranging from 70,000 to 120,000 B.T.U.'s; and Fluid Heat wall flame and pressure burners.

★ FLUID HEAT Replacement Parts

We can also supply, under usual priority regulations (P-84 at present), burner motors, blower motors, transformers, pumps, etc., for the various models of Fluid Heat Burners built within the last 10 years. Some parts are available for older models.

A WARTIME OFFER TO DEALERS WHO DO NOT HANDLE THE FLUID HEAT LINE

★

Here's a real opportunity to increase your service business, make up for lost equipment sales! If you are servicing Fluid Heat customers in the absence of a former dealer — or if there is no authorized Fluid Heat Dealer in your territory — we'll be glad to send you the Fluid Heat Installation and Service Manual, together with the complete price list of equipment and replacement parts listed above. We'll give you the privilege of buying these under the usual priority regulations at standard dealer prices. First come, first served in each territory, so send us your firm name and address at once. Address: HEATING DIVISION, Anchor Post Fence Co., 6711 Eastern Ave., Baltimore, Md.

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OIL BURNER
"World's Economy Champion"
A PRODUCT OF THE ANCHOR POST FENCE COMPANY, BALTIMORE, MD., ESTABLISHED 1892

fueloil & oil heat

OPA Interpretations Clarify New Service Price Requirements

PUBLICATION in the October issue of Supplementary Service Regulation 19, setting up a maximum dollars-and-cents schedule of oilburner service prices, has raised a number of questions in the field. These questions have been condensed and submitted to OPA's Building Materials Price Branch, and interpretations have been made.

Dealers who have not filed their March 1942, prices; those who had filed lower prices; and those who were forced to continue giving free service now are allowed to charge hourly rates for service shown in Supplementary Regulation 19. These hourly rates, however, were not entirely clear, and an amendment now is being written to explain them.

It has been decided that the charge for the first hour may be used as a minimum charge for a call taking less than an hour. Charges for fractions of succeeding hours will be charged for in quarter-hour periods, adjusted to the nearest five cents.

The interpretations also define a city as the metropolitan area a dealer usually covers, regardless of the corporate status of the area in which the call is made.

OPA's interpretations of the questions follow:

1. Who are covered by the regulation?

A. Regulation covers all sales of oil burner maintenance and repair service on burners burning No. 5 oil or lighter on an hourly rate or per-call basis. The regulation does not cover the sale of such service pursuant to a contract. Contract sales are covered under Maximum Price Regulation No. 165.

2. What must be done to comply?

A. All suppliers were required to file their maximum prices in effect during March 1942, with the local war price and rationing board for the area in which is situated their place of business together with the method of computing those prices in use during March 1942. Suppliers who have not filed or do not file by November 1, 1943, may not charge more than the price specified in Supplementary Service Regulation No. 19.

3. When must this be done?

A. On or before November 1, 1943.

4. What should the statement contain?

A. The statement must show the highest price which he charged for service supplied during March 1942, together with a description and identification of such service and of all his customary allowance discounts, etc., in effect during March 1942.

5. Are prices for parts covered by the regulation?

A. No. However, the term "service" is defined in Maximum Price Regulation 165 to exclude any commodity or article sold in connection with the sale of a particular service, but where the price of a commodity or article sold in connection with a particular service is subject to any maximum price regulation which effects the maximum price for the commodity higher than that allowed by Maximum Price Regulation 165, the maximum price for the service may be increased by the difference between the maximum price for the commodity under this regulation and that under the regulation specifically applicable to the commodity. Where, on the other hand, the maximum price for the commodity fixed by the regulation having specified application is lower than the price of the commodity permitted by this regulation, the maximum price for the service must be decreased in the amount of that difference.

6. Does the regulation include my present prices?

A. The regulation increases price where those suppliers whose presently established prices are less than those established by the regulation and for those suppliers who customarily rendered their service in conjunction with the sale of No. 5 oil or lighter. The latter group may charge the prices established by the regulation.

7. Can I increase my present prices?

A. Only if your present maximum prices are lower than those set forth in Supplementary Service Regulation 19, or if you are required to furnish service without charge in conjunction with the sale of No. 5 oil or lighter. Under the above conditions you may charge no more than the rates set forth in the supplementary service regulation.

8. Can dealers in small towns within metropolitan areas charge the maximum prices allowed the larger cities?

A. An amendment to Supplementary Service Regulation 19 is now being prepared which will define the boundary of a city to comprise what is customarily considered to be the metropolitan area of that city.

9. In case where more than one man is required on a job can I charge my maximum hourly rate for each man?

A. Yes.

10. Can I charge for a full hour even though I do not stay a full hour on the job?

A. Yes. A charge may be made for the first hour regardless of the length spent on the job; this has been the usual practice for suppliers.

11. Can I charge the full maximum rate for the second and succeeding hours even though I do not stay the full hour?

A. The amendment to Supplementary Service Regulation 19, now being prepared, will provide that the charge for the second and succeeding hours must be computed on the basis of 15 minute periods rounded out to the nearest five cents.

12. What about mileage?

A. The rates established by the regulation are inclusive of mileage. There may not be added any amount representing mileage charges, or for time spent going to and from the job. However, those suppliers whose legally established rates are higher than those specified in the regulation and who regularly charged mileage in March, 1942, may continue to do so.

13. What about suppliers who charge on a per-call basis?

A. Suppliers who have properly filed in accordance with section 1499.108(b) of Maximum Price Regulation 165 and now charged on a "per-call" basis may continue to charge on that basis or may convert to an hourly rate basis and charge no more than the rate specified in Supplementary Service Regulation 19 for the first hour. Those "per-call" suppliers who have not filed must convert to the hourly basis and charge no more than the rates specified in the regulation until they file as required by the regulation.

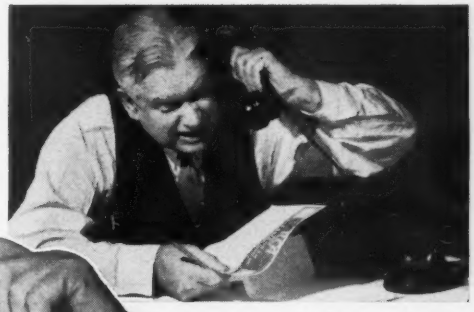
14. Does the regulation affect prices on contract service?

A. No; contract rates are covered by Maximum Price Regulation 165.

(*Continued on page 38*)

Will You Conduct Post-War Business

LIKE THIS . . .



. . . OR LIKE THIS ?

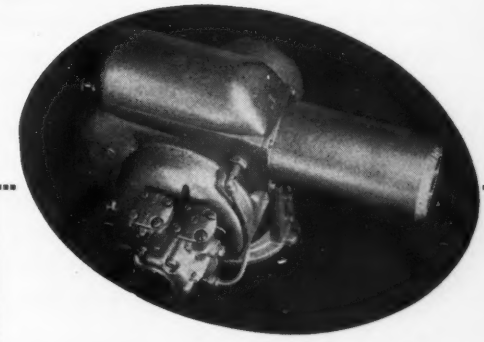
DO your post-war plans fit the possibilities of post-war residential heating? Or will you be caught with "too little, too late"?

There'll be a great demand for oil burners in both the replacement and new construction fields . . . *calling for quick action from both manufacturers and dealers.* HERCO is now making product and distribution plans to meet that demand.

Like the pre-war HERCO burners, our post-war products will be engineered for economical and trouble-free operation. But they will include new and even better features.

As to distribution plans, we are offering dealers post-war market protection now. This entails no obligation on the part of the dealer. But it assures him of being among the first to receive new HERCO products and gives him sales protection in his area.

Write to HERCO today about this post-war dealer protection plan.



Although HERCO is at present working 100% on war production, our post-war products will be geared to the demand for Heating by Herco.

HERCO OIL BURNER CORPORATION, Lancaster, Pennsylvania

Service in Wartime
Sales in Peacetime

HERCO
The Oil-Thrifty
OIL BURNER

fuel oil & oil heat

Start now to plan for Post-war Business

Before the war, the biggest outlet for domestic oil-burning equipment was the small-home heating market. In one year, out of 582,000 F.H.A. Title II insured mortgages, 60% covered houses of five rooms or less. 27.8% were on six-room homes. Stated differently, *511,000 new homes built in one year were prospects for oil furnaces burning one gallon per hour or less.*

H. C. Little Burner Co., leading manufacturer of domestic oil-burning heating equipment for 15 years, is now building units for Army, Navy and similar use. At the same time, this Company has perfected three new oil-burning units with practically unlimited postwar possibilities. All this is in addition to improvements and refinements on prewar models.

Yes, we're doing our postwar planning right now, are going to be ready for the biggest market in the history of the oil heating industry. Before you turn this page, dictate a letter outlining *your* postwar plans and requesting our ideas: Let's go after that postwar market together!

H. C. LITTLE BURNER CO.

HOME OFFICE:
San Rafael, California
BRANCHES IN PRINCIPAL CITIES

15. What are the penalties for violating the regulation?

A. Suppliers violating any provisions of this regulation are subject to the criminal penalties, civil enforcement action, license suspension proceedings and suits for treble damages provided for by the Emergency Price Control Act as amended.

16. What about service on burners using No. 6 and heavier oil?

A. Service prices on such burners are not covered by Maximum Price Regulation 165 or Supplementary Service Regulation 19; they are covered by Maximum Price Regulation 136.

17. Do companies that serviced burners in March 1942, have to file even though they no longer do that kind of work?

A. Companies in business on August 19, 1942, effective date of Maximum Price Regulation 165 were required to comply with the filing requirement of Maximum Price Regulation 165.

FHA Starts Survey Of Postwar Building

FIELD offices of the Federal Housing Administration are launching an immediate survey in all important housing markets to determine the ability of the construction industry to resume home-building operations promptly after the war, Commissioner Abner H. Ferguson has announced.

The survey is regarded as an important step in the National Housing Agency's program to prepare for postwar activities in the housing field. It will establish first-hand information on the prospective demand for new privately financed housing in these markets after the war, the availability of suitable sites on both developed and undeveloped land, and the probable capacity of the private building industry in each locality in the immediate post-war period.

At the same time, the FHA is consulting with the building materials industry on questions related to the availability of adequate supplies of materials and equipment for housing construction when wartime restrictions are lifted, Mr. Ferguson stated.

AUTOMATIC CONTROLS FOR FUEL CONSERVATION

. . . available Now from PERFEX

Everybody in the business knows that proper control of the heating plant is the first and most important step in fuel conservation. The government recognizes this fact, and has permitted use of needed materials for making controls.

Accordingly, Perfex is now prepared to make prompt shipment of standard controls upon receipt of properly rated orders.

PERFEX CORPORATION

408 West Oklahoma Avenue, Milwaukee 7, Wisconsin

PAW Releases Hold On Burner Replacements

EFFECTIVE October 13, PAW's Petroleum Distribution Order No. 13 was amended to remove the necessity of PAW approval for a replacement oilburner. PDO 13, which replaced L-56, now allows the replacement of oilburning equipment "for the purpose of increasing the efficiency thereof" without violating the restrictive phases of the order. Replacement burners have been removed from "Additional Facilities" which are not allowed oil under the order. It is no longer necessary to apply to PAW for a certificate allowing the delivery of oil to a replacement, or for agricultural purposes.

This change does not otherwise affect the WPB requirements for replacements. Four copies of Form WPB 2727, signed by the customer still must be filed with WPB's Plumbing & Heating Division at Washington, and it should be stated (Section 2, sub-section D) that the oilburner requested is in dealer or manufacturer stocks and no critical material will be required.

It is understood that work now is in progress to simplify Form 2727, and to make it possible to file with local WPB field offices where it can be processed without going to Washington. This possible change has not been announced, but it may come soon. Until the change is made, dealers should follow the same procedure as in the past, with the exception that no certificate from PAW need now be submitted with the Form 2727 copies filed.

Work is understood to be under way also to simplify the procedure for emergency replacements. It is sought to eliminate the necessity of applying for a 30-day emergency replacement permit, and allow dealers to make emergency installations and file notice of them after they are completed, pending field approval of the customer's application for a permanent replacement on Form 2727. This also is only a possibility for the future, and not yet effective.

Discussion at the Industry Advisory Council meeting in Washington, October 19, stressed the necessity of insuring the junking of replaced burners. No final plan has been announced, but it is probable that it will require a dealer or installer to swear to the disposition he has made of the replaced burner within 30 days of its removal. Usable parts probably will be allowed to be salvaged, either by the dealer or the manufacturer, but the Council feels that some check must be provided to prevent replaced burners from flowing back into trade channels, dressed in a new coat of paint. These burners are being replaced to improve fuel efficiency, and they must not be put back into service, according to Council members. If it is feasible to repair burners, they should not be replaced.

Boiler Men See Need For Public Protection

BOILER men are beginning to think of the postwar market for their equipment as much in terms of quality and heating satisfaction as in terms of volume and price. Some are expressing the fear that novel and untried designs that may be put on the market will be sufficiently unsatisfactory to affect public confidence in steam and hot water heating. Others are not so concerned with design as with the quality and performance of whatever equipment is offered.

One prominent boiler manufacturer has made a survey of state regulations governing the installation of boilers, and has found that only about half the states have adequate rules for boiler construction, installation and use. Some of the more populous states have no regulations at all. Less than half the states require boilers to be constructed and used according to the Code of the American Society of Mechanical Engineers, or its equivalent. Considerably more than half the states have no rules affecting the construction and installation of boilers carrying pressures up to 15 lbs. per square inch.

Many of the states rely only on the private insurance company regulations to govern boiler construction and use within their borders. Any boiler user, therefore, who is willing to shoulder his own risk and dispense with insurance is free of any regulation covering minimum standards of safety.

Manufacturers point to the need for regulations to protect the public, particularly in the postwar period when forecasts indicate an era of low-cost housing development. The majority feel that state or local laws are urgently needed to regulate and define permissible boiler construction, installation and use. Opinions differ as to the standards to be used, but all agree that any minimum standard is better than none. Some want commercial standards for steel and cast iron boilers. Others see the ASME Code as a ready-made, recognized yard-stick that would be sufficient.

A few shy from state or local regulation, pointing to bad practices that have become entrenched in some areas where the necessity to file plans, apply for permits, and submit installations for inspection has led to petty graft and favoritism. These men favor strict industry standards, along the lines of those adopted by the Institute of Boiler and Radiator Manufacturers and the Steel Heating Boiler Institute, and a vigorous campaign to sell the desirability of the improved equipment made under such standards directly to the public. Others object on the grounds that owners willing to gamble on substandard boilers or water heaters may be menacing the entire neighborhood as well as their own families.

Ideas of the boiler men differ only in the manner of accomplishing a recognized desirable end; good quality and performance for the protection of the buying public. The men in the established boiler industry agree on the aim. Most of them protest that they are not so much concerned with the design or price of the equipment that is to come, as with its safety and ability to give satisfactory performance.

ASHVE Attacks Waste

LOCAL CHAPTERS of the American Society of Heating and Ventilating Engineers were urged during October to include in their activities a campaign to conserve fuels of all types and aid the conservation drive. Material supplied gave a general outline of fuel conservation measures, a program for a conservation meeting, an outline for a talk on fuel conservation, and a check list of 57 items to reduce heat loss and improve heating plant efficiency.

It is estimated that 28% of the dwelling units in the country were built prior to 1899; 38% in the period from 1900 to 1919; 25% between 1920 and 1929; and 7% between 1930 and 1940.

ELECTROL

TODAY

and TOMORROW

FOR the duration, the entire production facilities of Electrol's modern plant at Kingston, N. Y. will be devoted solely to the manufacture of precision-built hydraulics for our Army and Navy aircraft. ¶ Electrol Hydaulics' dependable and unfailing positive split-second operation has proved vital to the brilliant performance of the Grumman Hellcat, Avenger and the Widgeon. ¶ Peace will find Electrol's seasoned engineering and manufacturing abilities ready to build again those efficient and dependable products the industry has come to expect of Electrol.

ELECTROL INCORPORATED, KINGSTON, NEW YORK

Indoor Climate Institute Completes Organization

ORGANIZATION of the Indoor Climate Institute was completed at a recent Cleveland meeting attended by many of the leading manufacturers of heating and cooling equipment. The Institute has as its primary purpose a program for the improvement of heating and air conditioning in the interest of public health and greater indoor comfort.

The I.C.I. membership insignia will stand as a symbol of greater indoor comfort to the American public. The Institute, a non-profit corporation, will have its headquarters in Detroit. It will serve as a clearing house of information, set up with a central staff and committees qualified to conduct a broad program of public and trade education. The public will be informed as to the many benefits in health, comfort and economy resulting from properly designed and installed prime heating equipment—burning coal, gas or oil for warm air, hot water or steam heat.

With the inevitable postwar demands for summer cooling, as well as greater heating efficiency and comfort in winter, the program of education will clarify conceptions as to systems and methods which will assure truly air conditioned or cooled areas in homes, commercial establishments, offices, public buildings and industrial plants.

The Indoor Climate Institute proposes the establishment of local chapters throughout the Nation. Membership in the local organizations will be composed of the various members of the trade, dealers and utility companies.

Many practical objectives have been set up for the first year of operation for the Institute. A comprehensive study of manpower problems, now and for the postwar period is to be made. This will assist everyone in the heating and cooling industries to recruit and train personnel in the many specialized skills required in the manufacture, distribution and installation of central heating and cooling systems. Technical committees have been set up to study the codes, standards and practices, as established by the various industry trade associations and authorities for the benefit of the public.

Although it is not contemplated that there will be any advertising conducted by the I.C.I. until the postwar period, all members will be furnished with the I.C.I. insignia which will appear in their individual advertising. This will furnish the preliminary identification of the constructive, far-reaching program on the part of manufacturers, dealers and service organizations who have the responsibility of protecting the health and indoor comfort of Americans.

Officials of I.C.I. state, "Next to food, heat has become the most important subject affecting the health of America. The need of fuel conservation and proper indoor climate to preserve the health of the nation offers the Institute an opportunity to make a real contribution. Automatic control of temperature and humidity is going to provide an entirely new conception of indoor comfort for Americans in the postwar period. Heating and cooling equipment will be as advanced in design, construction and performance as the products of other great industries. It will reflect the progress made and lessons learned in meeting the demands of war production."

The Board of Directors and officers of the I.C.I. are launching a membership drive immediately. The executive personnel has been elected, which is as follows: President, Paul B. Zimmerman, Airtemp Division, Chrysler Corp., Dayton, Ohio; 1st Vice President, T. A. Crawford, Timken Silent Automatic, Detroit, Mich.; 2nd Vice President, E. N. Hunter, National Radiator Co., Johnstown, Pa.; Secretary, R. E. Moore, Bell & Gossett Co., Morton Grove, Ill.; Treasurer, E. N. McDonnell, McDonnell & Miller, Chicago.

The officers and the following compose the Board of Directors: A. T. Atwell, Quaker Mfg. Corp., Chicago; C. T. Burg, Iron Fireman Mfg. Co., Cleveland; W. J. Grover, Surface Combustion Corp., Toledo; John Knighton, Servel, Inc., Evansville, Ind.; C. D. Lyford, Minneapolis-Honeywell Regulator Co.; J. M. McClintock, Illinois Iron & Bolt Co., Chicago; John Rainbault, General Electric Co., Bloomfield, N. J.; J. R. Scott, Mueller Furnace Co., Milwaukee; Jack Searls, White Rodgers Electric Co., St. Louis; W. L. Seelbach, Forest City Foundries Co., Cleveland.

Advisory Council to the Board is composed of: Homer Addams, Fitzgibbons Boiler Co., New York; Lyle C. Harvey, Bryant Heater Co., Cleveland; C. E. Lewis, Delco Appliance Division, Rochester; W. L. McGrath, Williamson Heater Co., Cincinnati; Albert Penn, Penn Electric Switch Co., Goshen, Ind.; L. R. Ruthenberg, Servel, Inc., Evansville, Ind.; E. C. Sammons, Iron Fireman Mfg. Co., Portland, Ore.; Arthur Shellenberger, Alco Valve Co., St. Louis.

Questions and Answers Clarify P-84 Regulations

INTERPRETATION 1 to P-84 has been issued in question and answer form to clarify the requirements for securing preference ratings for heating emergency repairs. Nine of WPB's interpretations to the revised order follow.

1. The order provides that a preference rating of AA-5 may be applied to deliveries to a seller of repair items and conversion parts. Does this mean that the seller is given an automatic rating of AA-5 to obtain repair parts for stock to be used as the need for them arises?

A. No. Before a seller may apply the AA-5 preference rating, he must have first obtained from a consumer a certification as provided in paragraph (d) (1).

2. Who must sign the certification provided in paragraph (d) (1)?

A. The consumer, in other words, the end-user or the person who requires the repair or replacement, either the landlord or the tenant, whoever buys the material.

3. In obtaining a certification from the consumer, must the seller submit to the consumer an itemized list showing all the items used in the repair or replacement?

A. No. This is not necessary, but the consumer should not certify unless he knows what items were installed. However, to apply the preference rating, the seller must prepare an itemized list of the materials. A copy of this list should then be attached to the certificate received from the consumer and retained in the seller's files.

4. Must a person who buys equipment for several buildings sign a separate certificate for each building?

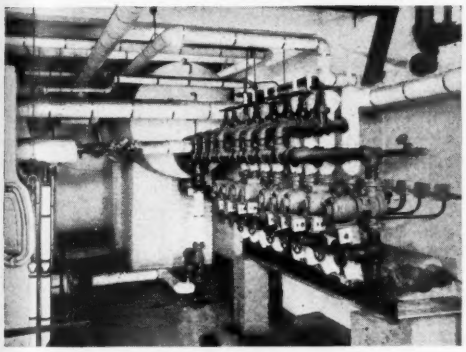
A. No. One certificate may be made to apply to several buildings, by designating them on the dotted line after "Address of installation."

5. What does the seller do with the

NINE ZONES OF COMFORT

ALWAYS ENOUGH HEAT...NEVER TOO MUCH...IN THIS GARDEN APARTMENT

Colonial Garden Apartments, Hempstead, N. Y.



Boiler room of Colonial Gardens, showing nine zones controlled by B & G Boosters

To a post-war world demanding new and improved ways of doing old things, the B & G Monoflo System contributes better apartment house heating at lower fuel cost.

The ideal heating system is one in which the heat input can be closely balanced with the heat output . . . *which makes forced hot water the obvious choice!* Water can be circulated through a *long range* of temperatures, thereby permitting close adjustment of the heat delivery to the actual need for heat.

Easy zoning is a further asset—the nine zones in the apartment illustrated above assure greater tenant comfort, and by eliminating over-heating, save materially in fuel. Important, too, is the Monoflo method of piping used in this building, which enables *one* pipe main to do the work of two. Less designing time, easier installation and lower cost all help account for the phenomenal growth of B & G Monoflo Heating.

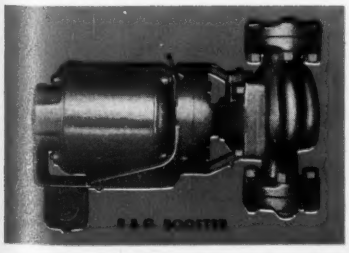
For complete design instructions, send for B & G Handbook.

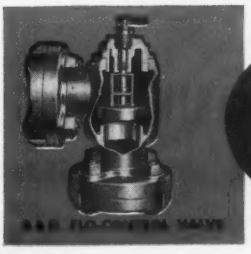
B&G MONOFLO SYSTEM

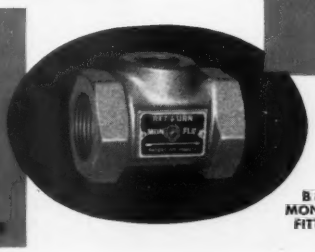
BELL & GOSSETT COMPANY

MORTON GROVE, ILLINOIS *(Suburb of Chicago)*

Canadian Licensee: S. A. Armstrong, Ltd., 115 Dupont St., Toronto







B&G MONOFLO FITTING

fuel oil heat

certificate received from the consumer?

A. The seller retains the certificate and keeps it on file as evidence of his authority to apply an AA-5 rating to obtain material or to replenish his inventory.

6. How is the rating applied by the seller?

A. After receiving the certificate from the consumer, the seller applies the rating in the same way as he would apply the rating assigned under any other order. The procedure and standard form of certification are described in Priorities Regulation No. 3.

7. Paragraph (b), regarding restrictions on the use of preference ratings, mentions only repair and replacement of plumbing equipment and heating equipment or conversion parts. Does this mean that a rating may not be used to obtain material for the repair of domestic cooking appliances, commercial cooking equipment and commercial dishwashers?

A. No. The amendment of August 21 added domestic cooking appliances, commercial cooking and food and plate warming equipment and commercial dishwashers to the definition of articles for which the delivery of repair items is given a preference rating. In making this amendment, a corresponding change in language was inadvertently omitted from paragraph (b) (1). The paragraph is, however, interpreted, in the light of the entire amendment, to apply to the use of preference ratings for repair items of all kinds covered by the order.

8. The order states that the ratings may not be used to replace usable equipment or to make a substitution which would provide more extensive facilities than are necessary to replace the equipment, part, or parts worn out, damaged, or destroyed. What does this mean?

A. This does not mean that the equipment being installed must be exactly equal to the replaced equipment, but simply that no additional services are to be provided by the new installation. Several examples will help make this clear:

Q. May a worn out 20 gallon water heater be replaced by a 30 gallon water heater?

A. No. Such a replacement would constitute more extensive facilities and, therefore, would not be permissible under paragraph (b) (1). It is not necessary to replace a water heater with one of exactly the same type as the one used previously, provided the capacities of the two heaters are the same.

Q. Does P-84 permit the replacement of a 24" furnace worn out or damaged beyond repair with a 26" furnace?

A. Not necessarily. Such a replacement is permissible only if the original installation was too small to heat the area involved, resulting in over-firing and thus accelerating the need for replacement. In this case, replacement may be made with the size necessary to provide adequate heat for the same area. However, the order does not permit the replacement of a furnace with a larger furnace in order to heat additional space.

9. How is the re-rating provided for in paragraph (f) effected?

A. The re-rating procedure is set forth in Supplementary Order P-84-a. This order states that: "Any person, with whom an order for plumbing and heating equipment was placed prior to August 21, 1943 and rated A-10 in accordance with order P-84 as amended December 16, 1942, which order may now be re-rated AA-5, is authorized to treat such order as re-rated without requiring any notice or cer-

"THE MOST DIFFICULT JOB OF ALL LIES AHEAD—THE DRIVE TO VICTORY"

Our Industry must Serve the Nation with maximum production of war goods, maximum service in oil-heating to maintain a healthy home-front, and maximum purchases of War Bonds.

HEADQUARTERS FOR

ELECTROL BURNERS—PARTS—ACCESSORIES

ELECTROL MANUFACTURING COMPANY

DIVISION OF

BROWN TAYLOR ENGINEERING COMPANY

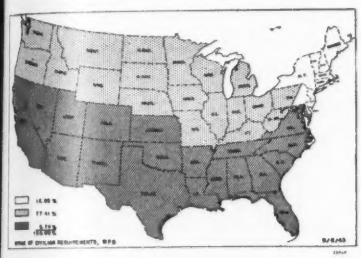
249-253 CHESTNUT ST. PASSAIC, NEW JERSEY

ificate to be furnished to him by his customer, provided that if any orders are rated pursuant to this supplementary order all orders on the books of the manufacturer or distributor which may be rated under P-84 must be so re-rated."

◈

Study Furnace Needs

A RECENT STUDY by the Office of Civilian Requirements concerning furnace requirements for replacement purposes revealed that approximately 77.41% of the installed furnaces which will be operating this winter in the United States are in the central and western areas of the country. The eastern area represents 16.85% and the southern area makes up only 5.74% of total furnace installations in the United States.



Location of 6,917,723 warm air furnace installations, July, 1943. White area, 16.85%; light shaded area, 77.41%; dark shaded area, 5.74%.

In processing furnace requirements the Office of Civilian Requirements had many variable factors to consider, such as the effect of the degree day factor on distribution. The zero and sub zero states have a relatively greater need for replacement furnaces than the milder southern states. It was therefore necessary to localize the sales and installation volume of furnaces over a period of years in order to plan distribution according to actual furnace use in the different areas.

The use of different fuels in different parts of the country and the resulting need for certain types of furnaces for certain areas was another important factor which had to be considered in determining furnace requirements.

◈

BOWSER, INC., is the new name of the former S. F. Bowser & Company, Inc., Ft. Wayne, Ind. Other than the change in name there is no other change in the corporate status.

BLUEPRINTS FOR YOUR HOUSE *of* TOMORROW

YOU MAY HAVE UNBREAKABLE WINDOWS!

Plexiglas and Lucite, used for rear-gunners' "greenhouses" are being suggested for use in your windows after the war.

BUT – *Your Heating Plant will be* KOVEN WATERFILM

Yes, the ultra-modern home will be created with many new inventions. As up-to-date and convenient as any of them will be your KOVEN WATERFILM boiler, then, as now, the fastest steaming boiler on the market.

KOVEN WATERFILM combines the latest scientific improvements into an efficient and economical piece of equipment.

Important advantages of the KOVEN WATERFILM boiler are:

- quick heat
- even room temperature
- plenty of domestic hot water
- increased economy of operation

You are planning for the future when you plan on KOVEN WATERFILM for your home.

WATERFILM BOILERS, Inc.

154 OGDEN AVENUE JERSEY CITY, N. J.

PLANTS: JERSEY CITY, N. J. • DOVER, N. J.

OPA Allows 3-cent Rise In Cast Radiator Prices

BECAUSE essential production or cast iron radiation was threatened, OPA has authorized a 3-cent-per-foot increase in the sheet prices of all cast iron radiator types.

The adjustment of maximum prices was the minimum required by law in exceptional cases where essential production is threatened by operating losses due to increased costs and declining volume, and the action was taken by OPA after an analysis of volume and cost data covering virtually all producers and after numerous conferences with members of the industry.

The advance in prices was authorized in Amendment No. 3 to Maximum Price Regulation 272 (Cast-Iron Boilers and Cast-Iron Radiation), effective October 9, 1943. While the amendment provides for a three-cent per foot increase in sheet prices, the net addition to manufacturer's realization after application of customary functional discounts of 15 and 5 per cent is slightly less than 2½ cents per square foot, which, OPA said, will assure production required to meet essential needs.

When the regulation was issued on November 23, 1942, the prices for cast-iron radiation were reduced an average of 12 percent but since that time declining volume, resulting from construction curtailment, coupled with rising labor costs has brought about operations at a loss which threaten maintenance of essential supply.

Production and shipment data indicate sharply reduced volume in the first six months of 1943 contrasted with the same period in 1942. Production declined about 47 percent and shipments 37 percent with further reductions probable.

Cost studies of financial information submitted by six producers who account for 90 per cent of sales showed all producers but one obtaining less than total costs from sales at the present time, (the highest cost producer having costs exceeding sales realization by 2½ cents per square foot).

DEGREE DAY TABLES

ONE MONTH ONLY					LAST SEASON			
	September		*Percent*		*(Sept. 1 to May 31)*			*Percent*
Normal	*1942*	*1943*	*Change**		*Normal*	*1942*	*1943*	*Change**
116	172	190	+ 4.7	Albany	6587	6383	7334	+14.9
12	33	19	—42.4	Atlanta	2999	2880	2820	— 2.1
34	50	54	+ 8.0	Baltimore	4509	3802	4409	+15.9
98	103	120	+16.5	Boston	5853	5388	6156	+14.3
125	154	191	+24.0	Buffalo	6805	6286	7275	+15.7
84	193	167	—13.5	Chicago	6205	5547	6849	+24.0
52	135	88	—34.8	Cincinnati	4993	4515	4885	+ 8.2
50	150	139	— 7.3	Cleveland	5926	5572	6319	+15.2
5	34	1	—97.0	Dallas	2378	2405	2321	— 3.5
124	153	93	—39.2	Denver	5784	5933	5282	—11.0
99	193	160	—17.1	Des Moines	6356	5739	6718	+17.1
141	188	171	— 9.0	Detroit	6660	5808	6800	+17.1
126	192	188	— 2.1	Grand Rapids	6655	5815	6873	+18.2
106	110	129	+17.3	Hartford	6037	5662	6433	+13.4
288	278	226	—18.7	Helena	7600	8473	8483	+ 0.2
..	15	2	—86.6	Houston	1323	1406	1212	—13.8
65	133	112	—15.8	Indianapolis	5459	4795	5657	+18.0
50	136	60	—51.5	Kansas City	4971	4468	5064	+13.3
5	3	0	..	Los Angeles	1362	1328	1125	—15.3
34	107	0	..	Louisville	4421	4032	4499	+11.6
120	238	204	—14.3	Milwaukee	6955	6539	7649	+17.0
163	282	236	—16.3	Minneapolis	7898	6847	8550	+24.9
..	5	0	..	New Orleans	1208	1350	1205	—10.7
51	53	65	+22.6	New York	5270	4701	5308	+12.9
81	184	108	—41.3	Omaha	6074	5794	6288	+ 8.5
36	47	49	+ 4.3	Philadelphia	4732	4296	4913	+14.4
69	125	112	—10.4	Pittsburgh	5427	5227	5666	+ 8.4
179	202	238	+17.8	Portland, Me.	7128	7073	7786	+10.1
109	51	15	—70.5	Portland, Ore.	4214	4079	4050	— 0.7
104	84	112	+33.3	Providence	5946	5304	5958	+12.3
36	116	56	—51.7	St. Louis	4602	4168	4675	+12.2
95	110	26	—76.4	Salt Lake City	5568	6321	5499	—13.0
122	155	101	—34.8	San Francisco	2562	2404	2446	+ 1.7
284	341	351	+ 2.9	Sault Ste. Marie	9021	8332	9416	+13.0
174	113	81	—28.3	Seattle	4560	4103	4333	+ 5.6
98	164	194	+18.3	Toledo	6202	5621	6619	+17.8
43	59	64	+ 8.5	Washington	4582	3900	4376	+12.2

*Compared with last year, not with normal.

◈

Radiator Sizes Cut

PRINTED copies of Simplified Practice Recommendation R174-43, Cast Iron Radiators, are now available, according to an announcement of the Division of Simplified Practice, National Bureau of Standards.

This recommendation consists of a simplified schedule of radiators commonly known to the industry as small-tube, and supersedes Recommendation R174-41, Large-Tube Cast-Iron Radiators, originally promulgated in 1940. This change has been made in view of the fact that a War Production Board order establishes the maximum weight in pounds per square foot of heating surface for these radiators.

The revised recommendation lists the number of tubes per section, catalog rating, and dimensions for 10 sizes of radiators. This figure, compares with 17 sizes heretofore manufactured. Additional information included in the recommendation concerns testing, method of assembly, location of tappings and air vents, and other details.

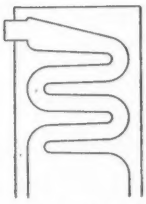
Copies of the recommendation may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 5 cents each.

RIGHT NOW—He's married to a Corsair!

—And if he's like a lot of boys we know, that Corsair is in his mind all day, and he dreams about it all night.

But one of these days the props are going to get knocked out from under our little pals of the Axis, and "he" is going to find himself at loose ends, feeling better than he's ever felt in his life, due to the training he's had, and Rarein' to Go!—and we know where he'll go.

He's going to pass up that Corsair and marry the girl of his dreams—he's going to find himself thinking about that little home with all the Wonderful Conveniences that the Post War World holds in store for him.



And we at Penn Boiler—busily grinding out the materials of war to hasten that day—We're going to be ready for him!

Comes V-day—

YOU CAN EXPECT GREAT THINGS FROM PENN BOILER!

PENN BOILER & BURNER MFG. CORP.

E. C. STAUFFER, PRESIDENT

LANCASTER, PENNA.

fuelfoil & oil heat

Authorize Committee On Foreign Oil Supplies

LOOKING toward the probable increase in demand for foreign oil, PAW has issued Petroleum Directive 70 to more completely coordinate foreign operations of American oil companies. The directive widens the responsibilities of the Foreign Operations Committee of the Petroleum Administration.

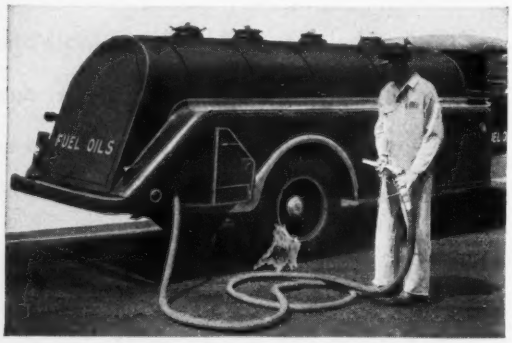
It will be the duty of the Committee to govern the export of oil producing, refining and transportation equipment to get the greatest use and largest production out of these scarce materials.

Typical of the problem is the demand for materials to expand the Fort Norman field in Canada and pipe its oil to White Horse and the Pacific Coast. Close under the Arctic Circle, this oil is urgently needed for Alaska and the North Pacific area. Production at present is about 500 barrels a day, though production could be stepped up to something more than 3,000 barrels a day as soon as transportation is made available. The field is comparable in size to a major U. S. oil field, though it is not of exceptional size or capacity from present indications.

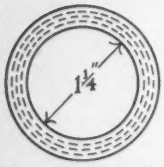
There also is considerable demand for petroleum equipment and facilities in Latin America where much greater quantities of oil are more easily available.

Facts and Figures ON THE PROFITABLE ADVANTAGES OF

GOODALL



"NEWTYPE CORD" FUEL OIL HOSE



When you buy 1¼-in. "Newtype Cord," its full inside diameter will be retained; *but* . . .

The diagrams at the left illustrate, mathematically, one of the principal advantages of patented "Newtype Cord" construction . . . its *non-flattening* feature. Whether on the reel, or virtually doubled up on sharp radius bends, the hose retains its full inside diameter.

With hose that flattens like *this*, you would actually get *less* flow than through "Newtype Cord" having only 1-in. diameter.

Translating the diagrams and their explanations into terms of gallons delivered: If No. 2 oil is pumped through 100 feet of 1¼" "Newtype Cord" hose, with 30 lbs. pressure at the pump, the flow will be at the rate of 31 gallons per minute. In a hose that will flatten to ½", the rate of flow drops to 20 gallons per minute, or somewhat LESS than through "Newtype Cord" of only 1" diameter.

Equip your trucks now, with this rugged yet easy-to-handle hose and profit by the *increased deliveries* its use insures. Available in all standard sizes. Contact our nearest branch for prices and delivery information, and for booklet, "How to Make Fuel Oil Hose Last Longer."

WE ARE PARTICIPANTS IN THE OWNERSHIP AND OPERATION OF NATIONAL SYNTHETIC RUBBER CORPORATION

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GOODALL RUBBER CO. OF CALIF. GOODALL RUBBER CO. OF TEXAS
FACTORY—TRENTON, N. J. (Est. 1870)

Buy WAR BONDS . . . for VICTORY!

GOODALL
RUBBER COMPANY INCORPORATED

Amends PAO 12

PAW HAS AMENDED its Petroleum Administrative Order No. 12, affecting the use of materials by oil marketers. The amendment, PAW says, does not materially change the regulations that have been in effect since July 1, 1943. The Order was amended only to clarify its language so that its intent can not be misinterpreted.

Deputy Administrator Ralph K. Davies stated that the amended Order makes clear that "Maintenance and Repair" does not include: (a) any use of material in connection with a service station or retail outlet other than for upkeep or restoration purposes, or (b) the installation or replacement of any equipment.

Mr. Davies also pointed out that the amended order now provides that pumps and tanks may be installed on construction projects that have a WPB rating of at least AA-3. Previously, a rating of A-2 was sufficient to come within the "exceptions" provision.

PAW Suspends Conversions

REVERSING an earlier decision that heavy oil conversions already started would have to be completed, Petroleum Administrator Ickes announced on October 19, that consumers in the process of converting to other fuels may suspend their conversion activities. This is understood to apply to all companies that are not already actually burning coal.

Other agencies concerned, including OPA, have not yet made a similar announcement concerning the change in policy, but it is believed that they will concur in the change.

In announcing the new policy, Ralph Davies, Deputy Administrator of PAW, said that 11,136 eastern plants had effected an annual saving of 50,934,400 barrels of heavy oil, and 2,590 Middlewestern plants have saved another 11,339,700 barrels a year. He warned, however, that light oils continue to be short.

Atlantic Conference Asks Rationing Change

CHANGES in the fueloil rationing regulations to eliminate the necessity of sending coupon sheets to customers who are applying for supplementary rations has been asked by Lionel L. Jacobs, chairman of the Atlantic Coast Oil Associations Conference, according to Clyde G. Morrill, secretary. It has been suggested that oil dealers be permitted to submit a signed statement of deliveries against the year's ration, and the balance unused, instead of returning the coupon sheets. There is some indication that this plan is viewed with favor in Washington.

"This would avoid," according to Mr. Jacobs' letter to OPA's Fuel Rationing Division, "recording out; re-recording in; cost of mailing; time and cost of covering letter; interference with system; and possible delays in deliveries, and would induce the (about 10% of) consumers who are now holding up rations for adjustments they believe due them, to deposit them at once and let dealers get ahead with filling tanks.

"As there is no entry of deliveries on coupon sheets this year, certificates probably would be more informative than coupon sheets."

◈

Release Copper Tanks

SIMPLIFICATION and standardization of porcelain lined range boilers and hot water storage tanks has been announced by the War Production Board in amendment to Order L-199, Plumbing and Heating Tanks. This completes the simplified program for range boilers and water storage tanks.

This action also permits the release from inventory of copper and copper base alloy, monel metal and stainless steel range boilers for replacement for existing similar installations, with the provision that the replaced tank is of nonferrous metal, and that the replaced tank will be delivered to an approved scrap dealer. It is estimated that an inventory of 2,500 of these copper and copper base alloy, monel metal and stainless steel range boilers now exists.

Permission to release all metal supports in inventory and to resume production of cast iron boiler stands was also granted by the revised order.

Recent RO-11 Amendments

Amendment 79, effective September 25, defines a "primary supplier," clarifies "ration credits" under ration banking, and more clearly defines "fueloil storage capacity in use."

Amendment 80, effective September 15, allows boards to issue domestic cooking and lighting rations for a year instead of six months, and issue coupons without dates of issuance and expiration; fixes a maximum ration for space heaters used for both cooking and heating; and increases the domestic cooking ceiling to 30 gals. per month for the first seven people.

Amendment 81, effective October 4, grants rations to new space heaters bought before August 24 in rationed counties of Idaho.

Amendment 82, effective October 4, completes Table 1-D containing percentage adjustments to get normal, maximum and minimum rations by heated floor area in the Pacific Northwest.

Amendment 85, effective October 2, extends to two years the period fueloil dealers and suppliers must retain original inventory records.

How to Eliminate "WILD GOOSE CHASES"

Prevent dirty-oil troubles and you'll free your service man from calls for minor servicing.

Service trips to clean fouled points or clogged nozzles cost you money, waste time for your short-handed service crew, and bring you nothing in return.

Why not sell your balky-burner owners a Fulflo Filter? You'll not only end those "wild goose chases" for your service men, but turn an extra profit on the sale!

Fulflo Filters remove the impurities that pass right through ordinary fuel oil filters. Their patented Honey-comb Filter Tubes clean out every particle of dirt that could clog nozzles or foul points. They usually save all service calls except the annual ones to replace used-up Honeycomb Tubes!

Write today for details . . . place your order, too, if possible.

Present production is applied wholly to war effort, but there are still a limited number of Oil Burner Filters in stock . . . and all the Honeycomb Filter Tubes you need.

Commercial Filters Corporation, 28 West Third Street, Boston 27, Massachusetts.

Model AS-4 with replaceable filter element. Capacity 20 G.P.H.– approved by Underwriters. Throw-away unit, Model TU-4, has same capacity, costs about half.

Fulflo FILTERS
REG. U.S. PAT. OFF.

SPECIFY *FULFLO* FOR POSITIVE DEPTH FILTRATION

Philadelphia Opens Burner Service School

IN RESPONSE to the need of the times as necessitated by wartime conditions, an oil burner service training course got off to an excellent start October 4 in Philadelphia.

This most recent educational activity of The Electrical Association of Philadelphia was developed jointly by the Oil Heat and the Oil Heat Dealer Divisions of The Electrical Association, together with the Vocational Trade Extension Program of the School District of Philadelphia.

With an enrollment of approximately 100 men, the trainees are divided into two fundamental and two advanced classes. Each class will hold two sessions each week until mid-January. Two classes meet Monday and Wednesday evenings. The remaining classes will be held Tuesday and Thursday evenings until the middle of January.

Each session is of three hours duration, from 7 P. M. to 10 P. M. The first hour is given to a lecture on theory, while the next two hours are devoted to practical shop work on actual equipment.

The program of the course was worked out by a technical committee representing the Oil Heat and the Oil Heat Dealer Division. In addition to this, the member companies of these divisions have made available to the School District sufficient equipment so that each trainee will have ample shop work under expert supervision. The committee likewise provided four capable instructors.

The School District through the Murrell Dobbins School, provided two fully equipped classrooms for the lecture periods, and adjoining an adequate amount of shop space.

In the shop, five complete units will be under actual operation. In addition, a generous supply of equipment is on hand for the men to work with, including oil burners (of gun, pot and rotary types), all types of controls, combustijon chambers, circulating pumps, flow valves, etc.

The instructors are paid by the School District.

The course is free, with the exception of a $2 registration fee, $1 of which will be returned at the completion of the course to the enrollee if he has attended 70% of the sessions.

It is of interest that the majority of the men enrolled are already in the oil heat industry. Some are already engaged in service work and desire to acquire additional knowledge of the trade. Others are engaged as clerks or in the distribution end of the industry and are availing themselves of the opportunity to acquire knowledge and skill in a really worthwhile vocation and one that will not only increase in demand in the years to come, but one that continues in importance regardless of business conditions.

Left: *Students at the first session of the Philadelphia service school*

Right: *Students inspect an old-timer*

Timken Completes Third Service School Series

TIMING meetings just before the beginning of a new service season, Timken Silent Automatic has completed a series of 47 service schools for dealers and their men, the third series conducted since the beginning of the war.

The schools, generally of a day's duration, were held at centrally located points throughout the East and Middle West and were conducted by Timken field service men under the direction of F. M. Jordan, national service manager.

Although primarily intended as a "refresher" course for veteran service men, several sections of the course were devoted to oil heating fundamentals for the newly-employed mechanics.

One feature of the school was a new slide film, much of it in full color, showing Timken equipment types and models and illustrating the various procedures recommended for maintaining and servicing them.

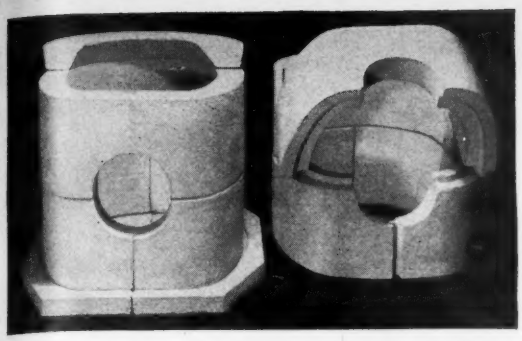
At the beginning of each program, servicemen were given a "quiz" of 10 questions, and at the conclusion of the school, 20 additional examination questions were asked.

Replies indicate an average mark of 85% or better which is believed unusually high considering the nature of the questions.

Commenting on this year's schools, Mr. Jordan said, "Almost without exception, attendance was higher than expected. But most encouraging was the eagerness to learn displayed by newcomers to the field."

Study Fuel-Saving

SUPPLEMENTING the national conservation program, Dr. R. R. Sayers, director of the Bureau of Mines has named a 12-man National Fuel Efficiency Council from the prominent engineers of the country to chart a campaign to combat waste of coal, coke, wood, oil and gas. Emphasis first will be placed on commercial and industrial plants, and later expanded to include smaller fuel users, including home owners. Only oil man on the panel is O. F. Campbell, combustion engineer for Sinclair Refining Co., East Chicago, Ind.



"IN-QUIK" FIRE CHAMBERS

Installed in a few minutes. No bonding cement needed. Horizontal rabbeted joints, and vertical tongue-and-groove joints are flame-tight, and give a locked, well-anchored structure. Walls 2" thick. Chamber will withstand over 2600°F. Corrugated under-surface of floor forms dead air spaces beneath chamber.

Size	Gal. P. H.	Sq. In. Inside	Inside Length	Inside Width	Height	Weight, Chamber
No. 1	1-1.35	115	13"	11"	13"	87 lbs.
No. 2	1.35-1.65	149	15"	13"	13½"	96 lbs.
No. 3	1.65-2.00	179	16½"	13½"	13½"	112 lbs.

Chamber only, or Chamber and Floor, are optional. Packed in strong wood crates.

5 Minutes to install in feed-door of furnace or boiler.

MYKA-DISK No. 1

Reduces oil bills 10% to 15% and more. Permits live heating surfaces to absorb more heat units. Lowers stack temperature, lessens soot-formation, raises CO_2 content of gases, improves combustion, brings faster heating, and does not hurt draft.

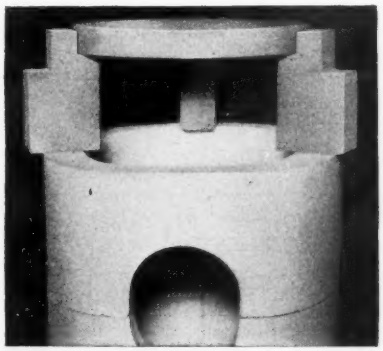
MYKA-DISK Baffle is 10", 12", or 14" dia., and 1¼" thick. Reinforced with stainless steel rod.

DISK-ARM (Pat. pending) is rugged gray-iron casting. Fits any feed-door by means of *SLIDE-BAR* and *SET SCREW*. Suitable for plants 18" to 30" I.D.

HANGER-ROD is 3/16" stainless steel. High tensile strength at red heat. Cannot be dislodged when hooked through center loop of *MYKA-DISK*. No. 1 Outfit shipped complete (DISK size as desired) in strong carton, or 3 Outfits per wood crate.

MYKA-DISK No. 2

Brings same beneficial results as No. 1 Outfit, but lower-priced. MYKA-DISK (10", 12", or 14" dia.) is supported on 3 refractory *ADJUSTO-LEGS* having "steps" 5", 6½" and 8" above top of firepot. Legs may be "spotted" with cement, but this is not essential. Installed in a few minutes. No harmful effect on draft. *ADJUSTO-LEGS* and *MYKA-DISK* withstand more than 2600°F. Practically indestructible. The price is easy on the Owner's purse. A very fast seller. No. 2 Outfit shipped complete (*DISK* size as desired) in strong carton, or 3 Outfits per wood crate.

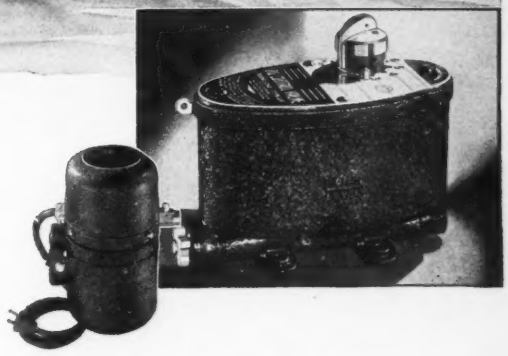


MYKA-DISK resting on ADJUSTO-LEGS on top of any Fire Chamber.

For Prices and Trade Discounts, write

INSULATION & REFRACTORIES CO.
WILLIAMSON • WAYNE COUNTY • N. Y.

fueloil & oil heat



Economical Heating . . .

Getting every last degree of heating comfort out of a gallon of fuel is even more important in wartime than in times of peace. This is one of the important features of A-P DEPENDABLE Oil Control Valves — proven in thousands of homes—and vital today on heating units in training camps and on fighting fronts as well.

Heating and cooking on a minimum of fuel has always been one of the prime objectives of A-P's continuing research and development in accurate dependable fuel controls. Proven in the past, this will again pace future developments in new post-war heating and cooking appliances. In fact, many designers and engineers are already using A-P research to assure the "Dividends of A-P Dependability" in their new products, tying in on the rich accumulation of knowledge in new control applications that wartime progress has developed. Watch for these developments on YOUR new products.

The DIVIDENDS OF A-P DEPENDABILITY ACCUMULATE TO YOUR PROFIT.

IN THE HOMES OF THE NATION
(Oil Burning Heaters)

IN TRAINING CAMPS
(Barracks Heaters, Cooking Ranges)

IN SHIP GALLEYS
(Cooking Ranges—A-P Oilifter)

Automatic Products Company
2458 NORTH THIRTY-SECOND STREET
MILWAUKEE 10, WISCONSIN

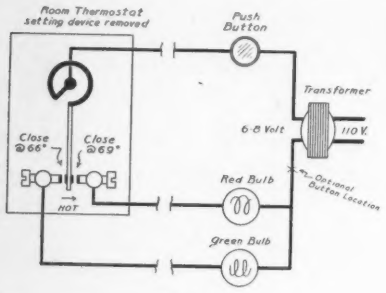
A-P Dependable OIL CONTROL VALVES

Installation and Service Slants

Apartment House Controls

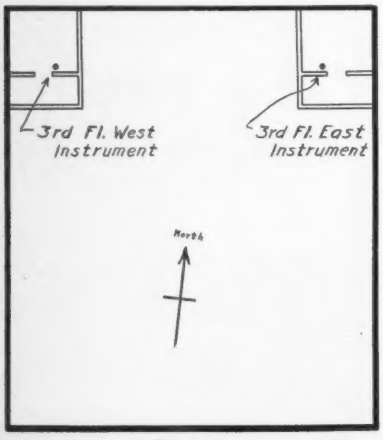
THE ACCOMPANYING diagrams show how two room thermostats were pressed into service as "long distance temperature indicators" which solved a few of the long standing problems of proper heat control in a three-story apartment house.

Diag. 1 shows the type thermostat used and how it is wired so that when a button is pressed a green bulb lights if the temperature at the room thermostat is lower than 66°, a red bulb lights if the temperature is above 69°, and neither bulb lights with the temperature between these limits.



Diag. 1

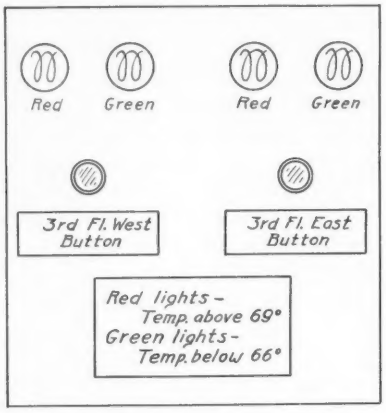
The setting devices of the two room thermostats were removed completely and, with the help of nuts, bolts and soldering, the parts previously moved by the setting device were secured in permanent positions. After the thermostats were installed, accurate thermometers located temporarily next to the thermostats were used in adjusting the screws shown in the drawing, so that the bulbs would light at the selected temperatures. The same method of calibration can be used to adjust for any other desired room temperatures. When the oil shortage is ended, the bulbs probably will be set to light at 70° (green) and 73° (red).



Diag. 2

Diag. 2 shows the locations of the two temperature indicators on the third floor of the apartment house. Only the rooms in which the instruments are located are shown. Large corner rooms were selected. The instruments are on inside walls, a considerable distance from outside walls.

The boiler room panel is shown in Diag. 3. A five-wire low-voltage thermostat cable runs from this to the space above the third floor ceiling. At the top, a three-wire thermostat cable runs from this five-wire cable to each instrument. The wiring job was simple and relatively inexpensive.



Diag. 3

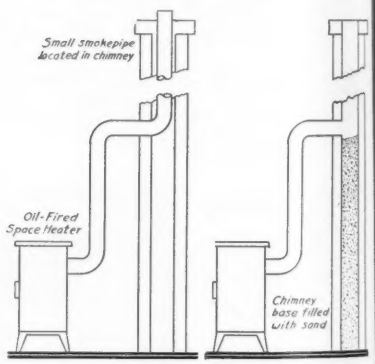
The two instruments provide the apartment house superintendent with information much more complete than could be provided by one instrument. On certain mornings, both green bulbs will light when the buttons are pressed. After half an hour, only one green bulb will light. Under certain outside weather conditions, a green light goes on for one instrument but a red light goes on for the other, revealing that under these conditions it is impossible to heat one side of the house to 66° without heating the other side to higher than 69°.

The temperature indicating layout settles questions about whether or not heat is needed on mildly cold days. Also, it gives data all during the heating season that assist in arriving at proper adjustments for the boiler room controls which determine how much heat will be provided. These instruments do nothing more than reveal if, at the two thermostat locations, the temperatures are lower than 66° or higher than 69°. They permit the superintendent to ascertain this from the boiler room, by pressing the two buttons.

To Get More Draft

CONNECTED to a space heater or water heater fired by a vaporizing burner, a chimney often gives insufficient draft because the oil flame is not large enough to warm the chimney. The diagrams show two effective ways out of such trouble. The first method is to install a smokepipe in the chimney the size of the smokepipe opening of the space heater, lowering the sections from the top of the chimney after they have been securely fastened together. Anchor the assembly top and bottom. At the top, seal the space between the smokepipe and the chimney using building cement, or building cement mixed with asbestos and protected from the weather by a metal cover.

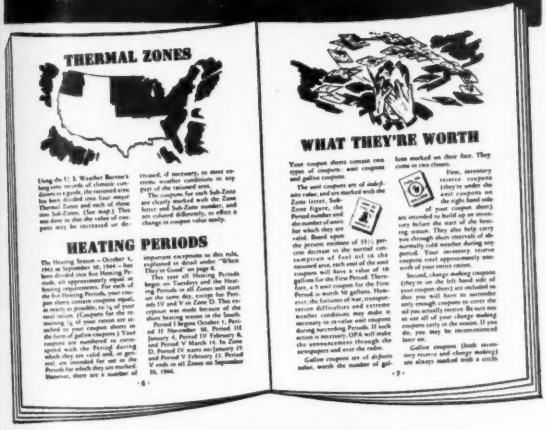
The second method, Diag. 4, is to fill the base of the chimney with sand to eliminate the pocket of cold air and the air leaks that existed previously. This idea can be used also for central heating plants having chimneys that give poor draft and which have clean-out doors at the level of the basement floors. Fasten the clean-out doors shut and fill with sand to the level of the bottom of the smokepipes. For future chimney cleaning, the smokepipes will be removed; the sand will stay in place.



Diag. 4

(Continued on page 54)

LAST CALL



for SHELL'S 1943-44 Fuel Oil Booklet

IF you haven't already sent for your free copy of this informative booklet on fuel oil rationing you'd better do it right away. For, frankly, it's one of the most popular booklets we've ever printed, and the stock pile is melting rapidly.

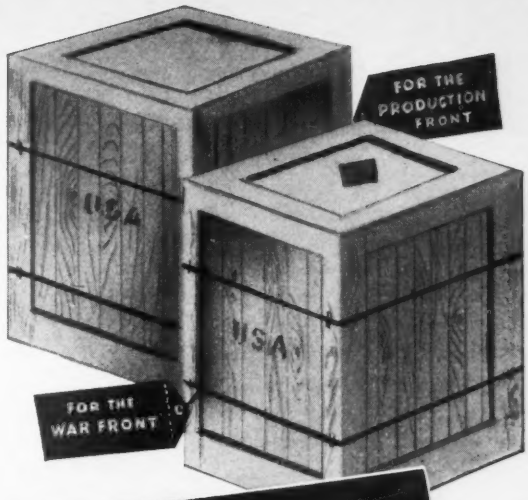
It gives you all the latest facts on fuel oil rationing that everyone connected with the fuel oil business should know... facts you can use to advantage in keeping your customers informed on the fuel oil conservation program.

Send today for your free copy. Write: Fuel Oil Department, Shell Oil Company, Incorporated, 50 W. 50th Street, New York 20, N. Y.

SHELL

SHELL FUEL OIL

Burner Testing Laboratories



SOLUTION TO THE PROBLEM OF NEW-PUMP "ABSENTEE-ISM"

With new Tuthill Pumps and Fuelstats for domestic use limited for the duration, it is more important than ever to keep present equipment operating efficiently.

To meet this problem of new-pump "absenteeism," you can depend on Tuthill authorized field service stations or the factory for necessary repairs and reconditioning.

TUTHILL IS BUILDING "FIGHTING PUMPS" FOR THE ARMY, NAVY, AIR FORCE AND MERCHANT MARINE.

TUTHILL PUMP COMPANY

939 EAST 95TH STREET • CHICAGO 19, ILLINOIS

fueloil & oil heat

Crippled Radiators Waste Oil

SLOW-HEATING radiators of a one-pipe steam plant waste oil if they are located near the room thermostat, because the burner operates additional minutes during each "on" period in its effort to heat these radiators properly. Where a customer's oil ration seems too small to provide comfort, try a brand new radiator vent valve, of the type designed for intermittent firing, on every radiator near the room thermostat. Generally this means the radiators in the dining room and living room.

Short Runs Waste Oil

THE BURNER that operates for only five or ten minutes at a time wastes oil. A good minimum "on" time for modern burners equipped with rapid-heating fireboxes is 20 minutes; it is longer for other burners. Generally the control adjustments can be changed easily to provide efficient on-off cycling, but occasionally different control layouts are needed. In one instance a burner continued to use excessive amounts of oil after strenuous efforts had been made to improve the heating plant and the combustion efficiency. Then, a switch to controls that gave "on" periods of more than half an hour, instead of the three to four minutes given by the controls installed originally, cut the oil consumption by more than 20%.

Year-Round Hot Water Jobs

YOU CAN STRETCH the oil ration for the owner of a steam plant equipped for year-round hot water by altering the controls so that the burner does not operate in winter unless heat is needed. Check up on the setting of the control that starts and stops the burner in summer to keep the boiler warm, at say 150° or 180°, for the sake of water heating. For the winter months, either disconnect this control so that it can not start the burner at all, or set it very low, at 140° or lower. In many homes this eliminates the "water heating operating periods" that otherwise occur during the night, on mild days, or when the house is not occupied. In this way it saves oil. On at least nine out of ten days of the heating season there will be just as much hot water as there would be with the oil wasted on the short "water heating operating periods."

Heat in Short Order

CAN YOU GET a burner started within five minutes when you find the oil tank dry, when the tank is full of water or bad oil, or when a break in an outside suction line air-binds the pump?

You can if you carry one or two sturdy five-gallon cans of fuel oil or kerosene, and if you have the know-how for feeding this quickly to the stopped burner. For greatest convenience, carry a can to which a ¼" IPS valve has been soldered or brazed (see Diag. 5). Carry also a few feet of ¼" OD copper tubing and a variety of copper tube conversion fittings and regular reducing bushings and couplings for connecting this to IPS openings from ⅛" to ½".

OIL IS AMMUNITION
USE IT WISELY

"OIL MISER" BURNERS

Engineering Co-operation and Services continue as always

Our greatly increased factory facilities are now completely on WAR PRODUCTION.

. . . But our Engineering Division is fully manned and we are rendering every possible service to the trade.

REPAIR PARTS (subject to Priorities Order) are and will be available.

PETROLEUM HEAT & POWER COMPANY
Makers of good oil burners since 1903
STAMFORD CONNECTICUT

GET OUT IN FRONT ON THE HOME FRONT

— with the MARSH TRI-TROL REGULATOR

An "outside" heating control that fulfills a vital need extremely well —

1. Saves Fuel for Uncle Sam. Records show actual fuel savings of 15% to 20% with the Tri-trol. Help building owners save this vitally-needed fuel for the war effort, while maintaining comfortable and healthful heating. Uncle Sam is urging installation of outside controls like the Tri-trol—ordinary controls are just not enough.

2. Makes Money for You. Multiple occupancy buildings such as stores, offices, apartments, hotels and hospitals, are immediate prospects for this completely automatic heating system control. It's something you can sell now — and can install without interrupting heating service.

Write for all the facts—now while our Fall and Winter selling program is under way.

NO PRIORITY NEEDED TO BUY THE TRI-TROL

MARSH TRITROL CO.
600 So. Michigan Avenue, Chicago 5, Illinois

Via Radio Newspapers and Magazines Uncle Sam is telling folks: "You will have less fuel to burn this winter prepare now, see your local heating expert." The Field Draft Control cuts fuel consumption 5% to 25%. When you install a Field Control you help yourself your customer and your Uncle Sam The complete line covers your entire market . . .

Write or wire us today for details. The Field Control is easily installed and the market is almost unlimited . . .

FIELD Conserves FUEL
COOPERATE WITH UNCLE SAM'S FUEL CONSERVATION PLAN...

FIELD CONTROL DIVISION
H. D. Conkey & Co.
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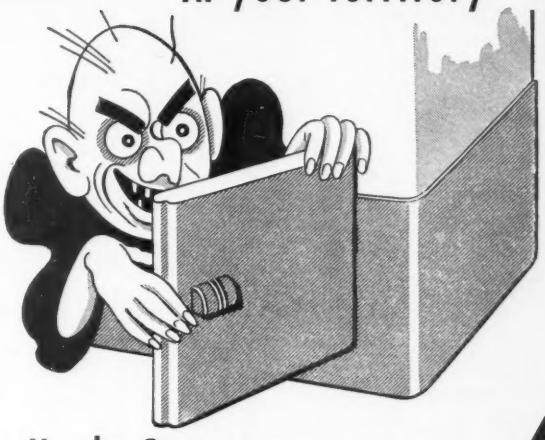
fueloil & oil heat

Saboteurs are lurking in your territory



Uncle Sam says: "get 'em!"

The Emergency Fuel Conservation Program requires your expert assistance—now! Here is your responsibility—and opportunity . . . Clean, adjust and repair the heating plants in your territory—make them save that average 15% of fuel now being wasted . . . now being so seriously needed . . . Your government asks this help and arms you with the newly amended priority ruling L-79 and P-84 to make it easy.

FW **A REMINDER TO FUEL WARDENS**

1 Clean entire heating systems—overcome sluggish actions.

2 Correct leaking valves.

3 Adjust operating controls and equipment—reduce smoke.

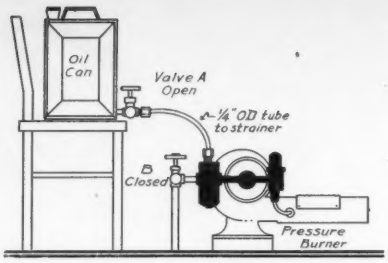
4 Clean flue surfaces and chimneys.

5 Insulate boilers and piping.

THEN YOU'LL BE (1) DOING YOUR DUTY (2) MAKING FRIENDS (3) BUILDING YOUR BUSINESS AND PROFITS.

The NATIONAL RADIATOR Co.
231-E Central Avenue · Johnstown, Penna.

The diagram shows how to hook up to a standard pressure burner with a one-pipe connection to an inside 275-gallon tank. Undo a plug in the side, top, or bottom of the oil strainer, and feed to the strainer from the five-gallon can, using the ¼" OD copper tubing. Close valve B from the 275 gallon tank—it may be located at the burner or at the oil tank—and open valve A from the emergency oil can. Start the burner. If the oil strainer has no plugged opening that can be used, look for a plugged priming tee in the burner feed line and connect the ¼" copper tubing to this. Or, the regular feed line to the oil burner can be disconnected and the emergency line substituted for it. This is easy with copper tube oil lines. Or, you may quickly drill and tap a ⅛" IPS opening in the top of an oil strainer.



Diag. 5

On a two-pipe installation that has a return line to the tank as well as a suction line, it is better to disconnect the regular return line from the fuel unit and run a ¼" copper tube to the oil can being used for emergency feed. Leave the cap off the can and run the emergency return line into the top.

It is not necessary, though convenient, to have a bottom connection in the five-gallon can. Caught without a can fitted with such a connection, you can get by on either a one-pipe or a two-pipe installation merely by running a line through the top opening of the can. Shove this line down to the bottom of the can and use it for your emergency feed line.

Experience proves that five gallons of fuel oil or kerosene generally serves a small home eight to twelve hours, during all but the most severe weather. Five gallons means more than three hours of continuous burner operation with a 1.5 gph nozzle. For larger homes and longer periods, leave additional cans of oil for an interested owner to pour as needed into the can connected to the burner.

This idea recommends itself particularly to oil companies that render burner service. In some companies, the practice is to use this emergency measure for all out-of-oil cases encountered nights and weekends when the oil trucks are not regularly available, and also for customers located far from the bulk plant. The service man provides heat within a few minutes after arriving on the job; the oil truck comes later, when convenient, without interfering with deliveries carefully scheduled by an automatic delivery system.

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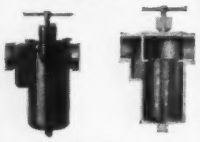
PRODUCTS

OFFER PROVED PERFORMANCE

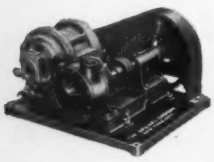
Kraissl Class 72 Strainers and Filters

Duplex


Single

Single and duplex types for suction and discharge service. Any practical degree of filtration. A necessity on every fuel oil line to protect pumps and burner nozzles. Available for low pressures as well as high pressures up to 500 pounds hydrostatic test.

Kraissl Class 60 Heavy Oil Pumps



Known and used as standard equipment for many years wherever independent pump and motor sets are required and as booster pumps for pump type burners.

Kraissl-Trumbull #522 Fuel Pump Unit

for gravity type oil burners having a burning capacity of not more than 3 gallons per hour. A rugged, dependable, wall pump approved by Underwriters' Laboratories, Inc.

Write for literature and dealers prices.

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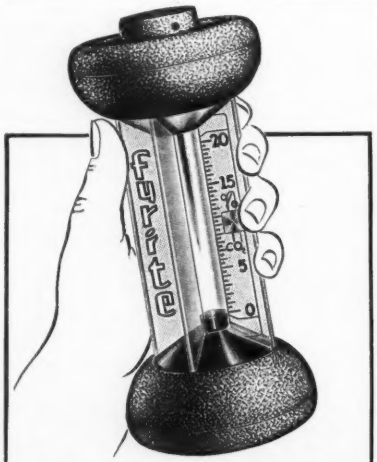


The CO_2 ANALYZER

That Simplifies Combustion Tests

Companion Draft Gauge and Mercury Thermometer also available.

Bacharach Industrial Instrument Co.

7000 Bennett Street • Pittsburgh, Pa.

Find Florida Oil

IN BRIGHT contrast to recent gloomy tales of dwindling oil reserves, Wallace Pratt, geologist and vice president of Standard Oil Co. of New Jersey, announced Oct. 22, the completion of a producing oil well at a two-mile depth in the Everglades swamp northwest of Miami, Fla., and indicated that it may prove to be the most important petroleum find in the United States since development of the new Illinois fields.

Located in Collier County, the well drilled by Humble Oil & Refining Co., struck oil at 11,700 feet. The black crude from the well was described by Pratt as of a heavy type, high in fuel content, which is characteristic of Gulf Coast production. A fair volume of natural gas, he added, is produced with the oil.

While explaining it was too early to estimate the size of the well or its full geographical significance, Pratt emphasized that the discovery has "timely importance" as indicating a new source of crude in a period of declining oil discoveries in the United States.

"The successful completion of this well," he declared, "may even be taken as evidence of the possible extension of the rich Gulf Coast oil-producing region eastward through Alabama, Georgia and much of Florida."

HEIL

is the Name to Remember

— for oil burners . . . oil-designed furnaces and boilers *that assure you of:*

- ✓ Satisfied, loyal customers
- ✓ Minimum service trouble
- ✓ Efficient, economical operation
- ✓ Design features that sell
- ✓ Profitable manufacturer-dealer relations

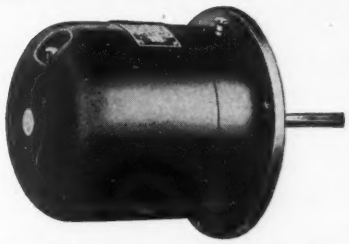
H-1

HEIL ANSWERS UNCLE SAM'S CALL . . . and helps the Arsenal of Democracy supply materials for Victory!

THE HEIL CO.

GENERAL OFFICES: MILWAUKEE, WISCONSIN

OHIO MOTORS



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Types—Split Phase and Capacitor
Speeds—1140, 1725, 3500 RPM
Power—1/20 to ½ HP, depending on speed
Voltages—Up to 220 A.C.
Frequencies—60, 50 and 25 cycles
Bases—Solid, Resilient or Flange
Mountings — Horizontal, Sidewall, Ceiling or Vertical, with shaft up or down

What is your problem?

THE OHIO ELECTRIC MFG. CO.
5913 MAURICE AVE., CLEVELAND 4, OHIO

NOW more than ever

CITIES SERVICE OILS
ONCE-ALWAYS

YOUR SYMBOL OF SERVICE

NOZZLES AT WAR?

Fig. F-80

Yes, all we can produce! . . . But we are *still* shipping emergency orders for one or two nozzles promptly! However, you should make those you have *last* as long as possible.

Don't:

1. Clean orifices with needles, pins, etc.—A tiny scratch will ruin the spray. Use sharpened toothpicks.
2. Remove hard carbon from the slots of the disc or inside the nozzle with pointed metal objects or files—a damaged seat or imperfect slot means another nozzle for the scrap. Use a soft brass wire brush and wash all parts thoroughly before assembly.
3. Carry service nozzles unprotected and jumbled together in a box—sharp corners will nick the orifices. Keep them in individual cartons or in a Monarch Nozzle box.

Do you have our Catalog D?

MONARCH MFG. WORKS, INC.
E. WESTMORELAND AND SALMON STS., PHILADELPHIA 34, PA.

fuel oil & oil heat

Publishes Tank Tables

APPROXIMATE capacities of various types and sizes of tanks for each inch of liquid depth have been compiled into booklet form for tank truck drivers, and also have been put on separate cards for the use of owners. The usual sizes and dimensions of fourteen conventional oil storage tanks, both basement and underground, are included in the booklet.

This is the work of D. R. Beane, 3808 Alton Place, N. W., Washington, D. C., who compiled the tables first for the use of his own drivers, and printed the cards on individual tank sizes for his customers. Copies now are available to the oil-heating industry.

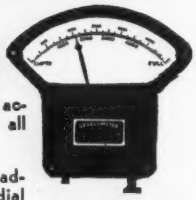
It is explained that variations in types of tank heads and tolerances allowable in manufacture, make the capacity figures approximate, and not necessarily accurate to the exact gallon. For the benefit of consumers, it is explained that basement tank gauges reading in quarters of total capacity cannot be taken in direct ratio to the total capacity of the tank.

WITH OIL CONSERVATION MORE VITAL THAN EVER, Its Accurate Check-Up Is Important— INSTALL

LEVELOMETER TANK GAUGES

"They're Dependable"

A LEVELOMETER gauge on an oil tank installation eliminates guesswork—it insures accurate readings at all times.



Large Model LEVELOMETER 12" x 12" case

Convenient, remote reading:—LEVELOMETER dial may be located at any reasonable point from tank and—large graduations and numerals make it easy to read.

LEVELOMETER tank gauges, approved by Underwriters' Laboratories, operate on an exclusive adaptation of the hydrostatic principle. No liquid is used in indicator to be affected by temperature changes, to evaporate, stain glass or to be blown out due to excessive pumping.

Midget LEVELOMETER Lowest priced Remote Reading Gauge Built

Small Model LEVELOMETER 8" x 8" case

Get complete details regarding LEVELOMETER tank gauges—the Remote Reading gauges that insure accurate — trouble free check-up.

THE LIQUIDOMETER CORP.

36-19 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

More "E" Awards and Stars for Industry

FITZGIBBONS BOILER CO., New York and Oswego, N. Y., was awarded the Army-Navy "E" at ceremonies at the plant, October 29. The company has been fabricating armor for tanks, gun shields and platforms, for which the award was given.

MOTOR WHEEL CORP., Lansing, Mich., has won its fourth war-time production award. The Navy "E" was first won in June, 1942, followed by the Army-Navy "E" and two white stars.

U. S. RADIATOR CORP., Detroit, has won a citation from the War Department for outstanding engineering and production contributed to tank track production. The citation congratulates the company on the part it played in the success of the African and Sicilian campaigns.

PREFERRED UTILITIES COMPANY, formerly at 33 West 60 St., New York, has moved to larger quarters at 1860 Broadway, New York 23, N. Y.

Advisory Committees To Help OPA on Price

A CAST IRON Hot Water Supply Boiler Industry Advisory Committee composed of six officials of manufacturing firms has been appointed by OPA.

The committee will advise OPA and make recommendations concerning pricing problems of the industry under existing price regulations. Appointed to the committee are: David L. Deen, Freed Heater and Stoker Co.; George L. Harberger, Eastern Foundry Co.; Max D. Rose, American Radiator; F. S. Ross, American Boiler and Foundry Co.; Fran Werner, Werner Foundry Co.; and R. Westphal, Weil McLain Co.

The Repair and Conversion Parts Industry Advisory Committee was formed Oct. 5 to consult with OPA and make recommendations concerning problems of pricing, delivery terms and trade discounts on sales and installations of repair and conversion parts for furnaces and heating boilers. The group will also consider the proposed revisions of RMPR 236, in relation to their effect on prices

Let's shake hands on it!

—after all, these days, you and we have the same problems:—to see that every oil burner owner gets the most heat out of the least oil.

That's why we're marketing SUNHEAT Furnace Oils especially for domestic oil burners—and that's also why we always recommend the local service man when our customers ask for help.

So this winter, let's be partners:—you do the servicing, we'll deliver the oil—SUNHEAT FURNACE OIL for HOT heat, for SURE heat.

Our nearest branch office is ready to cooperate. Phone, call, or write!

SUNHEAT FURNACE OILS

SUN OIL CO., PHILADELPHIA

Members of the committee are: William L. Healey, Waverly Heating Supply Co.; Henry K. Krekel, Stove Manufacturers Corp.; C. B. Magrath, Northwestern Stove Repair Co.; John H. Oswald, H. C. Oswald Supply Co.; H. F. Randolph, International Heater Co.; and Harley H. Smith, United States Radiator Corp.

◈

Tritrol Launches Fall Control Sales Campaign

MARSH TRITROL CO., Chicago, has been conducting meetings for heating contractors and equipment dealers in Chicgao, Philadelphia and New York to introduce its Fall and Winter Campaign on its Tritrol outside type heating control. Meetings were under the direction of H. T. Kucera, vice-president and E. A. Mosby, sales manager of the company.

This campaign includes a complete program of circulars, dealer ads, bulletins and other sales aids. An outstanding feature is the new 16-page sales presentation, which graphically portrays the vital need for saving fuel used for space heating, and illustrates how importantly the Tritrol Regulator can help in this work.

Throughout the new Tri-trol Fall and Winter Campaign, emphasis is placed on backing up the government's Fuel Conservation Drive. "The government considers this drive so vital to our war effort," states Mr. Kucera, "that limitations on equipment that will reduce fuel consumption have been removed wherever possible. But the big job of selling and installing these controls must be borne by each individual in the heating industry."

◈

Cyril Tasker became Director of Research of the American Society of Heating and Ventilating Engineers, New York City on October 1. For the last 13 years Mr. Tasker has been a member of the staff of the Ontario Research Foundation and as senior research fellow has carried on many important investigations relating to fuels, and a variety of problems.

Fred L. Black has been named special assistant to *A. M. Wibel*, vice-president of Nash-Kelvinator.

Heavy Oil Efficiency

(*Continued from page 28*)

the total as primary air (Rotary cup 15% to 25%). Mechanical or steam atomizing burners furnish only a small or negligible quantity, the air supply for the balance of the requirement with both types, therefore, being dependent on natural draft.

Since efficient combustion depends on the proper quantity of air, the design and capacity of the air port and the rate of vacuum behind the air port (furnace draft) are the factors requiring study and determination.

For operation at low furnace draft an air port should provide a minimum net opening of one and one-half and preferably two square inches per boiler horsepower to be developed. Its design should introduce air in an efficient manner and should conform to the specifications of the oil burner manufacturer.

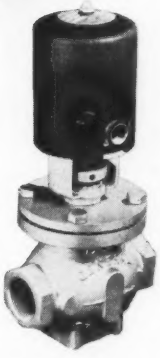
The required draft for efficient operation is that which is required to draw the correct quantity of air into the furnace. It depends on the area of the air port and its efficiency. Assuming the air entering the boiler to be at 100°, the tables of air flow are as shown.

G-1-1

HYDRAMOTOR VALVES

provide safe, positive control of water, air, gas, steam and oil. Sealed in oil for life, simplified, two wire current failure type. Hydraulically operated, slow closing, slow opening. Low in current consumption.

We manufacture and distribute, nationally, a complete line of automatic pressure, temperature and flow controls.



Type G-1-1

Wartime Manufacturers of Electro-Magnetic and Temperature Controls for Aircraft. Peacetime Producers of Automatic Pressure, Temperature and Flow Controls.

GENERAL CONTROLS

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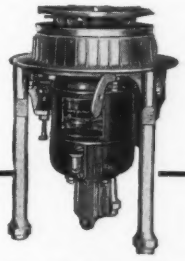
BOSTON • NEW YORK • PHILADELPHIA • DETROIT
CHICAGO • CLEVELAND • DALLAS • DENVER • SAN FRANCISCO



***Post-War* is in the thinking of every distributor and dealer. How soon? Who knows?**

***Yet we can't* stop thinking and planning. We shouldn't . . . though nothing much can be done except plan and prepare. We still have another job to finish.**

***Suggestion:* The line you are going to handle should meet Post-War needs—today's needs too!**

That's why you're right to be keenly interested in—

TORIDHEET LIBERTY LINE

Oil Burners, Air Conditioning Units
Oil Burner Boilers
Coal & Gas Furnaces
Water Heaters

Write for further information to

CLEVELAND STEEL PRODUCTS CORP.
Toridheet Division, Cleveland 2, Ohio

AIR FLOW THROUGH AIRPORTS—
BY INDUCTION

(Natural Draft)

Per Sq. Ft. of NET AREA, AIR @ 100° F.

Furnace Draft (Inches Water)	*Air Cap.* (CFM)	*Furnace Draft (Inches Water)*	*Air Cap.* (CFM)
.01	400	.10	1265
.02	569	.15	1550
.03	694	.20	1790
.04	802	.25	2000
.05	895	.30	2190
.06	982	.35	2380
.07	1060	.40	2530
.08	1135	.50	2830
.09	1200	.60	3100

Manually Controlled Oil Burners

The large, manually controlled industrial oil burner usually operates at a fixed rate of feed and draft. Calculations of air for combustion should be made by referring to an over-fire draft gage. Efficient boiler performance is secured by maintaining proper draft loss and flue gas temperature by consulting an outlet draft gage and a gas temperature indicator. Automatic control may be accomplished by controlling the flow of oil and air from steam pressure (providing the air ports are equipped with controllable shutters or dampers) and by controlling draft at the furnace by regulation of the outlet damper from an over-fire draft controller. If the air ports are of the fixed type (without shutters or damper) furnace draft is best controlled by connecting the outlet damper also to the control from steam pressure to furnish the fluctuating furnace draft requirement necessary for this type of operation. In this latter type, it is necessary to closely watch boiler draft loss (sooting) so that calculation will not be destroyed, and of most importance, insure that draft above the boiler outlet damper remains at a constant rate despite chimney fluctuations, accomplished by regulating the volume damper or by a barometric control.

The small manually controlled boiler is seldom encountered since it is practically obsolete.

Semi-Automatic Oil Burners

The semi-automatic oil burning installation is one in which operation is automatic in the sense that it starts and stops on contact from a pressure switch, ignited by spark and pilot. In such operation there is a constant heating and cooling cycle, a considerable portion of the total fuel used being required to reheat the furnace linings and heating surfaces after each cut out period. Plants of this type are usually equipped with barometric draft control, and any adjustment of the oil feed is made manually at infrequent intervals. Usually no adjustment of the air port is provided. Such an operating schedule frequently wastes up to 40% of the fuel fired, since there is no basis of reconciling the fuel feed, air supply and furnace draft.

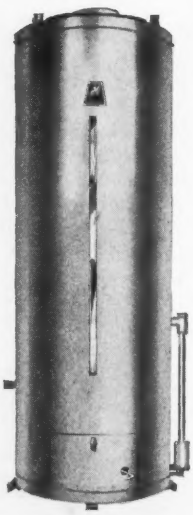
If at all mechanically possible, and if the consumption is sufficient to warrant, such an installation should be converted to full automatic operation. Smaller installations can be improved to prevent a large percentage of the loss attendant on such operation.

Attempt to suit the fuel feeding rate to the load so that as nearly constant operation as possible is secured. Equip the air port with a shutter, tied in with the oil feed control and determine its proper travel with relation to oil control by gas

Lochinvar

OIL BURNING WATER HEATERS

The SECRET of Lochinvar's Outstanding Success is the MULTIPLE-STAGE BURNER



MICHIGAN TANK & FURNACE CORP.
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SPOTLIGHT on STOKERS

In the last two years Stokers have been star performers in the conversion program. This spotlight emphasis promises to continue through and after the war.

Don't overlook the profit potentialities of the

CATSKILL STOKER

A simple, proven, dependable Anthracite Class "A" Stoker now offered for multiple dwellings, shops, small apartment buildings, churches, "taxpayers".

Sixty-five pound an hour Model "C" available immediately on authorized PD 668 or 1612 certificates.

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CATSKILL, NEW YORK

analysis (CO_2). See that the barometic control has adjustment facilities easy to reach and use, so that the fluctuating draft loss due to change in combustion rate can be compensated. Install a motorized barometric control if possible, to arrest the flow of cold air through the boiler during the cut out period. Install instruments to indicate furnace draft and to indicate outlet draft. If consumption warrants, use also a flue gas temperature indicator as an additional check. In heating plants, install a "weather" control furnishing a switching action so that pressure is not carried on the boiler when heat is not required by the building.

Full Automatic Oil Burners

The full automatic oil burning installation is one in which the flow of oil and air to the furnace is governed, either high-low or modulating in response to fluctuation in boiler steam pressure. However, such automatic operation presents a complicated problem of draft control because of fluctuating volume of gases of combustion. If adequate control is not provided, the wide swings in performance characteristics may be such as to defeat totally the high efficiency that is possible. Since the ratio of feed can be as high as three to one, the volume of gases of combustion varies greatly. If the modulating equipment controls the air port shutter (usual practice) it will readily be seen that if the draft at the boiler outlet remains fixed (barometric control) and the volume of gases to be removed fluctuates, furnace draft falls off badly when most needed. Since oil and air port control is a mathematical calculation, both opening and closing together, the rate of draft at the furnace must remain the same at all times if the air port is to furnish proper air quantities. This function can be controlled only by automatic control of the boiler outlet damper from furnace draft itself by an automatic controller.

A method of controlling coming into considerable favor is the control of oil feed and the outlet damper from a modulating control from steam pressure and operating with a fixed air port. In this method it is of utmost importance to insure a constant fixed draft at the breeching above the boiler outlet damper, by means of a barometric control or automatic control of the volume damper from breeching draft behind the volume damper against which accurate calculation can be made. From such fixed breeching draft accurate calculation and calibration of the control linkage may be effected. It is also necessary to watch closely draft loss and the flue gas temperature to insure that sooting does not increase draft loss, thus reducing furnace draft and destroying calculations. In this method, the original settings are made by careful analysis (CO_2 and exit temperatures). In subsequent operation, the simple fact that the draft gages and flue gas temperature indicator are showing the proper reading indicates that maximum efficiency is being maintained.

Smoke

Constant emission of smoke is inexcusable. It indicates such a loss of fuel that its correction should be dictated by common sense if not by civic pride.

Smoke as a result of oil burning is caused by several related factors. In order of their most frequent occurrence, they are the following:

1. Too much oil being fed into a cold furnace on starting and the conse-

It Takes IDEAS to Make a Successful Organization

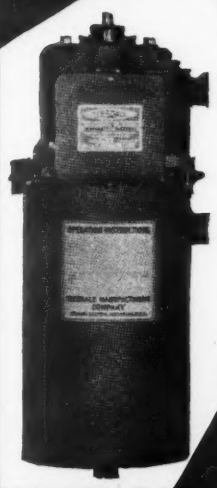
In the years before Pearl Harbor every member of our organization had complete liberty to make suggestions regarding our equipment, etc. Dealer and Distributor ideas helped us in raising our quality and at the same time lower cost, resulting in a phenominal increase in business for all concerned.

Now, while we are bending every effort in war work, the same liberty of ideas prevails. We'll have unique and profitable equipment for the great post-war markets.

If you are a Dealer or Distributor and have ideas, get in touch with us.

KORTH OIL BURNER CORP.-ECKHART MFG. CO.
Roselle Park, N. J.

The TEESDALE
TYPE T.U.X.
FULLY AUTOMATIC
OIL BURNER
PUMPS
IN THE
SPOT-LIGHT
TODAY for
TOMORROW



The T.U.X. Pump is silent, leak-proof, self-priming, easy to install and trouble-free . . . heart-beat of the burner's oil flow!

New literature is ready for your study. Write for it!

TEESDALE MANUFACTURING CO.
427 MARKET AVE., GRAND RAPIDS 3, MICHIGAN

quent failure or partial failure of combustion.

2. Insufficient air (indicated by smoky flame) usually as a result of too small an air port, or lack of draft.
3. Excessive furnace draft, which in combination with consequent incomplete combustion draws the unburned gases and vapor (smudge) through the boiler passages and up the stack.
4. Faulty atomization, due to insufficient preheat (indicated by sparks in flame) and failure to secure sufficient temperature of oil before starting; or by burner tip or cup condition, by pulsation (pressure difficulty); or by feed line condition (clogging).
5. Insufficient boiler draft loss (in water tube boilers) due to faulty baffles.

Petroleum

(*Continued from page 25*)

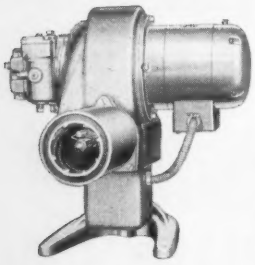
of natural gas, can best be converted into gasoline by the Fischer-Tropsch process. The process has been used commercially in Germany for some time as part of that country's program for making oil from coal, and a small pilot-plant unit for carrying out the Fischer-Tropsch synthesis is now in operation at the Bureau of Mines.[4] It would be unwise at this time, however, to make any prediction in regard to the amount of gasoline that might be produced in this manner.

A much larger potential supply of liquid hydrocarbons is obtainable from the oil shales of the United States. Most important of these deposits are the Tertiary oil shales of the Rocky Mountain region, located chiefly in Colorado and Utah. Other deposits are the Devonian black shales of Indiana and Kentucky and the cannel shales of Pennsylvania and West Virginia. In 1928 these shale deposits were estimated by Dean E. Winchester as capable of producing 92 billion barrels of oil.[3] Although this is still considered the most authoritative figure, a great deal of assay work must be done before an accurate estimate of practically available oil from shale can be made. It can definitely be said, however, that the potential supply of liquid hydrocarbons from this source is quite high compared with presently known oil reserves.

If we are willing to go outside the borders of the United States in our search we may at this point also include the Canadian deposits of tar sands. These deposits spread over thousands of square miles through the central portion of the Williston Basis in the Province of Alberta. As the name implies, they are composed of sands saturated with oil. Figures are frequently quoted indicating the reserves of the Athabaska deposits to range from a hundred billion barrels up to many-fold that quantity. Pratt gives an estimate of from 100 to 250 billion barrels,[17] which places Athabaska tar sands as one of the largest potential sources of petroleum in North America. However, the fact that these sands must be mined to extract their tar oil content presents many practical difficulties. Of the total area of the sands, variously estimated at 10,000 to 50,000 square miles, not more than 10 square miles, containing perhaps 500 million barrels of oil, can be considered workable by strip mining methods.

Aside from the development work which remains to be done on improved methods of recovery and refining, the production of oil from the tar sands as well

COMPLETE STOCK



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WAYNE OIL BURNERS
are available NOW for prompt shipment
ON PROPER PRIORITY

Replacement parts for all models of Wayne burners are always available.

WAYNE VICTORY HEATING MANUALS are FREE to all oil burner dealers for distribution to their customers.

HELP SAVE FUEL
Order your supply of these manuals NOW. Use your letterhead to give us copy for your imprint.

Write Wayne Oil Burner Company
801 Glasgow Avenue
Fort Wayne 4, Indiana

WAYNE'S V-DAY LINE WILL BE COMPLETE
OIL-FIRED, GAS-FIRED, COAL-FIRED FURNACES, STOKERS, BOILERS, WATER HEATERS.
CONVERSION BURNERS FOR OIL AND GAS.
LINE UP WITH WAYNE FOR POST WAR PROFITS

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Model 2A-300

THE GENERAL IS A TIME SAVER!

Servicing General Filters is easy, quick. No tools required. A simple twist of the wrist does the job.

The General is a good, legitimate war-time profit-maker for dealers. It helps protect the homefront. It defeats the "filth" column, as it filters all gums, waxes and dirt in the fuel lines, thus preventing nozzle fouling. Easy o sell and install.

MODEL 2A-300 FOR ALL POWER OIL BURNERS

Excellent design—Fine workmanship. A good record of service to the Field. Dependable.

General Filters, Inc., Detroit, Mich., 8699 W. Chicago Blvd.

GENERAL FUEL OIL FILTER *Write for Literature*

Listed: Re-Examination Service, Underwriters' Laboratories

as from shale presents a problem in waste disposal. Even though this may not be a representative figure, by way of illustration an oil recovery of 15% by weight will give approximately two cubic yards of solid material as waste per barrel of oil produced. This will tend to confine at least the initial processing operations to the point of mining.

The largest potential source of liquid hydrocarbons is without a doubt our coal reserves. Coal accounts for more than 98% of our country's known energy resources (exclusive of water power). These coal deposits amount to more than three trillion tons. Almost 70% of the total coal reserves lie in the semi-arid plains or in the Rocky Mountains, far from present centers of population and industry. About 85% of the current production is from the 30% of our reserves east of the Mississippi River. The anthracite deposits are largely confined to Pennsylvania, with lesser quantities located in Virginia and Arkansas.

Liquid fuels may be produced from coal by various methods such as low temperature carbonization, the Fischer-Tropsch synthesis, and high pressure hydrogenation. Of these three processes, the last two are of most interest from the standpoint of the yields that can be obtained. According to Petroleum Administrator Ickes, it is possible that some 50,000,000 barrels of gasoline may now be made annually in Germany by high pressure hydrogenation.[8]

According to Ickes' estimate, our available coal reserves can provide the syn-

KEEP 'EM FIRING with Gar Wood

★ Self-Contained Forced Warm Air Automatic Oil-Fired Heating Units. (from 50,000 to 500,000 B.T.U./Hr.)

★ Industrial Space Heaters up to 500,000 B.T.U./Hr.

★ Boiler-Burner Units up to 25 HP.

Some Distributors and Dealers are receiving Government business for Heating Equipment. If you are one of those who are called upon to submit estimates, heating plans and surveys, we suggest you enlist our cooperation and our engineering service.

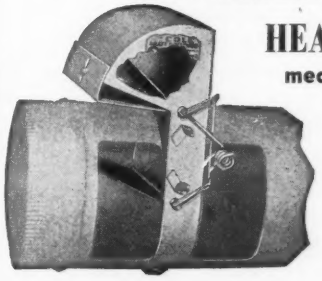
Write today for "ENGINEERING STANDARDS"—this valuable 72-page book on Engineering, Installation and Operation of Heating Systems, sent free on request to Sheet Metal Contractors and Dealers, Engineers and Architects. This offer made for a limited time only. Address reply to Dept. 14A.

HEATING DIVISION

GAR WOOD INDUSTRIES, INC., DETROIT

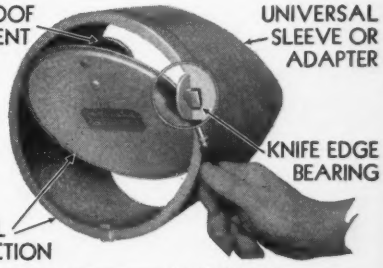
Protect Freedom—Buy War Bonds

BEST BY TEST - - AND COMMON SENSE



HEAT RETENTION means "fuel savings" with Cole Draft Governor

Complete stock of sizes on both types for immediate shipment. Write today for our low prices.



Stock No. 909 fits pipe sizes 7", 8", 9", 10".
Stock No. 912 fits pipe sizes 11", 12", 13".

Cole-Sullivan Engineering Company

41 Rosegold Franklin Sq. N. Y. | 6627 N. Campbell Chicago | 1316 N. 3rd St. Minneapolis

fueloil & oil heat

Table I

Approximate Cost Comparison of Methods for Motor Gasoline Production

	$ Invest. per bbl. gasoline per day[1]	*Tons steel per bbl. of gasoline per day*	*Direct cost inc. normal overhead but no depreciation*	*Total cost inc. normal overhead and 10% depreciation*
High pressure coal hydrogenation ..	$12,800	14.1	19.9 cents	22.6 cents
Fischer process, European design starting from coal	7,600	8.9	14.7 cents	19.2 cents
Fischer process, European design starting from natural gas[2]	4,750	6.5	6.0 cents	8.8 cents
Modern high-pressure hydrogenation of petroleum[3]	1,150	1.4	4.8 cents	5.5 cents
Modern oil refinery, using crude at $1.20 per barrel[4]	700	.7	5.1 cents	5.3 cents
Modern oil refinery, using crude at $2.00 per barrel[4]	700	.7	8.3 cents	8.5 cents

[1] 1942 costs for complete plant including all utility supply and auxiliaries.
[2] Natural gas at 5 cents per 1000 cubic feet.
[3] Crude at $1.20 per barrel.
[4] Crude price at well.

thetic fuel we need for a thousand years to come and still leave enough coal to use for all other present day purposes.[8]

As for the question of cost, it may be well to consider the figures in Table 1 which were submitted by William S. Farish before a House Committee last year.[2] From these data it will be seen that gasoline from such alternate raw materials can be produced at a cost sufficiently close to present prices, so that with an increasing cost of crude oil we may expect a gradual upward trend rather than any abrupt increase in the cost of gasoline and related products. In this connection it may be pointed out that the petroleum industry has not so far benefited by any appreciable increase in price level. Compared to August 1939, which represented the start of the present war, all commodities have increased 38.3%; farm products 103.1%; food 61.2%; and petroleum 19%.[12] The petroleum industry's record is one of decreasing costs brought about by technological improvements. With a guaranteed supply of basic raw materials we should, in light of the petroleum industry's past achievements, be able to look with confidence toward the future.

To sum up, it would appear that in addition to the petroleum known to be present in the ground, large but as yet undiscovered reserves may be expected to exist in different parts of the world, including the United States. How long we can continue to locate this oil and bring it to the surface at the desired rate is an open question. At some future time, however, whether it be in the immediate future, in the next generation, or in a much later generation, a shortage in natural petroleum will occur. In the meantime, there is nothing to indicate that this should result in any sudden change as far as our supply and consumption of gasoline and other petroleum derivatives are concerned. Progress will continue in the petroleum industry's efforts to improve the efficiency of its processes and the quality of its products. Advances in engine construction will make for better efficiency in the utilization of fuels and lubricants. Increased drilling on a world-wide basis will bring in more oil. There will be necessary adjustments in supply and demand so that oil will be moved around freely from the principal centers of production to the principal centers of consumption. All this will tend to prolong the necessity—at least in time of peace—for turning to alternate sources of supply. Then, as the need arises, synthetic products from the sources indicated will gradually work their way into the picture.

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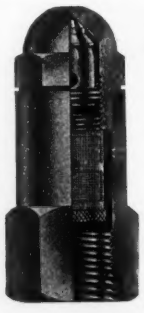

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Adjust or Insulate

(Continued from page 26)

further and recognized that the little adjustment of the burners was not all that was required. The burners were still too large, still burning at too high a rate so they merely exchanged the nozzles in the burners to smaller ones and this would have effected an additional saving of 3,400 gallons more or a total by adjustment and re-sizing of 19,400 gallons. They could have done a little bit better by finer adjustments but this result would not have been so bad. The total amount of oil would have been, roughly, 31,000 gallons and it would have been distributed approximately as follows:

Lost through ceilings	2,910
Lost through windows	6,440
Lost through walls	7,980
Lost through cracks	3,200
Lost up the chimney	10,250

Suppose the 57 home owners did not do anything about insulating their houses. There might have been several reasons for this. They might not have believed that the savings by the use of insulation were worth the money or they might not have had the money or they might instead of owning their homes have rented them. In this case we might assume that the oil burner company was interested enough in conserving oil to go back on these jobs and adjust the burners properly. Let's suppose that they adjusted oil burners to operate within the minimum requirements of the Commercial Standard. This would have saved 24,700 gallons of oil. If they had gone still further and adjusted the burners very accurately this saving would have been increased to 34,300 gallons. In the first case it would have saved the home owners $1,977 and if the oil burner company charged $3 a piece to make this adjustment, it would have only cost $171, not a bad deal. If the burner company had gone to extra trouble to adjust the burner better the saving to the home owners would have been $2,745. This might have cost $5 apiece or $285,—still not a bad deal.

The moral of the story is that you can save a whole lot more oil per dollar of expense by burner adjustment than you can by doing any one or all four of the winterizing jobs now being bally-hooed. This does not mean that the winterizing jobs in the form of insulation and storm windows etc. shouldn't be done. It does mean that a great deal more importance should be attached to burner adjustment than is now the case.

◆

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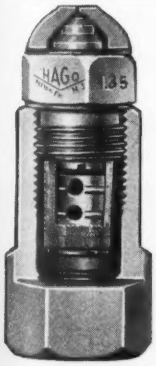

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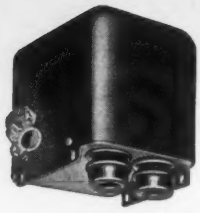

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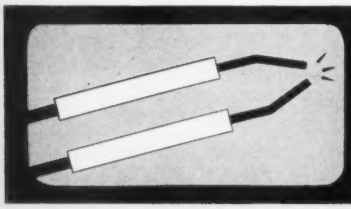

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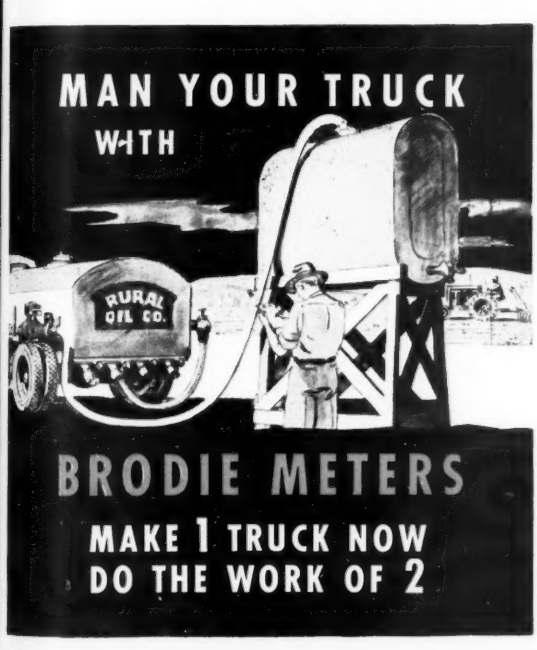

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